THE DOCK & HARBOUR AUTHORITY

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Editorial

St. Helier's Harbour, Jersey.

The Channel Islands are well known as holiday resorts, and St. Helier's, which is the harbour for Jersey, is used both by the Southern Railway and the Great Western Railway steamers, which carry thousands of holiday-makers in the course of a year from Southampton and Weymouth respectively.

In recent years Jersey has become more and more popular as a holiday resort, and owing to a vast increase in the passenger traffic it was decided that further improvements would have to be carried out to accommodate the boats and the necessary unloading and loading facilities for luggage, motor-cars, etc.

These improvements comprised the construction of a new berth at the outer end of the Albert Pier 245-ft. long and included a two stage passenger landing.

A new berth has also been constructed at the Victoria Pier 460-ft. long, with a quay width of 73-ft. and two double stage passenger landings.

These improvements have now been completed and should greatly assist in accommodating the passenger traffic.

St. Helier's is also well known for its exports of potatoes and tomatoes. The quantity of potatoes exported in 1930 was 53,475 tons, and of tomatoes 19,852 tons.

The Harbour of St. Helier's and the new works undertaken form the supplement for this month, and an illustrated article also appears on another page.

Bromborough Dock Getting Busy.

During recent weeks the quays of Bromborough Dock have presented scenes of great activity, and generally it is fast becoming one of the busiest docks on the Mersey. Since the beginning of this year some 60,000 tons of traffic have been handled, and some 29 foreign and 23 coastwise vessels have been harboured at its quays. As many as six ocean-going vessels have been accommodated simultaneously. Access roads to the north and south sides of the dock are now almost completed. The five large dockside cranes, which are also nearly completed, will provide a landmark for many years to come, and demonstrate that the directors are leaving no stone unturned to ensure that Bromborough Dock is provided with modern and efficient cargo-handling appliances. As the efficiency of the dock's facilities and services becomes more widely known it is hoped that this will be the means of attracting enterprising industrialists to establish in the vicinity.

First 1,000-ft. of New Deep Water Quay brought into use at Southampton.

The first 1,000-ft. of new deep water quay wall provided under the first section of the docks extension scheme on the Western Shore, Southampton, was brought into use for the first time on May 22nd, when the Southern Railway's 60,000-ton floating dock was berthed alongside.

The reason for the removal of the floating dock from its usual position to the new docks was that it was desired to dredge and restore to its usual depth the " bed " into which the dock sinks when about to receive a lift.

At the moment the passenger and cargo sheds and other quayside effects on the new docks works are not complete, although rapid progress is being made. It is anticipated that berthing accommodation for the world's largest vessels will be available by the late autumn.

L.M.S. Railway's New Ports Handbook.

How greatly the seaport trade of the country is linked up with the L.M.S. Railway system is shown in a new handbook, " Ports Owned and Served by the London, Midland and Scottish Railway," which the company have just published for the guidance and convenience of business people.

The L.M.S. not only own 27 docks, harbours and piers, with a total quayage of nearly 100,000-ft., but possess 70 steam vessels with an aggregate net registered tonnage of 30,000 tons—the largest fleet of railway-owned steamers in the country.

Serving by far the largest and most important range of ports in this or any other country, the L.M.S., with the possible exception of coal, carries the largest volume of overseas trade of any transport undertaking.

Throughout the last few years the L.M.S. Company have pursued a policy of dock modernisation and extension which has not only enabled them to deal expeditiously with existing trade, but allows ample margin for development.

The Institute of Transport.

The Council of the Institute of Transport has elected the under-named to take office on October 1st, 1932:—President: Sir David J. Owen. Vice-Presidents: J. H. Follows, C.B.E., M.V.O.; C. le M. Gosselin; Sir James Milne, C.S.I.; F. Handley Page, C.B.E.; G. S. Szlumper, C.B.E.; T. E. Thomas. Hon. Treasurer: Sir Henry P. Maybury, G.B.E., K.C.M.G., C.B. Hon. Solicitors: Messrs. Joynson-Hicks and Co. Hon. Librarian: R. Bell, C.B.E. Past Presidents to serve on Council: Sir Henry P. Maybury, G.B.E., K.C.M.G., C.B.; Sir Joseph Nall, D.S.O., T.D., D.L., M.P.; Roger T. Smith; Sir Josiah Stamp, G.B.E.; Hon. Sir Arthur Stanley, G.B.E., C.B., M.V.O.; Frank Pick.

The Port of Quebec.

The annual report of the Quebec Harbour Commissioners for 1931 states that the past year has been one of the most remarkable periods in the history of the port. During the twelve months there were completed the extensive works of port construction at Wolfe's Cove, undertaken in 1925 to provide Quebec with the most modern facilities for the accommodation of deep draft vessels. These new facilities were first used in connection with the arrival of the new Canadian Pacific steamship " Empress of Britain " on June 1st. They form part of a general plan providing for the gradual development of the north shore of the River St. Lawrence for a distance of three miles from Cape Diamond to Pointe a Pizeau (Sillery). The first section consists of 4,352 lineal feet of concrete quay wall, 3,776 lineal feet being parallel with the shore line, whilst at its south-western extremity the wall projects at an angle with the shore for 576 lineal feet. On the quay wall is a double-decked steel and concrete fireproof shed 1,380 feet by 100 feet of the most modern design, equipped with all facilities for the rapid handling of passengers and cargoes.

During the year there was undertaken a general investigation of the leading Canadian ocean ports, under the auspices of Sir Alexander Gibb and Partners, the well-known British engineers, Quebec being included in the scope of this important survey.

During the year 795 vessels, with a tonnage of 5,002,892 tons, were dealt with in the port, as compared with 847 vessels with a tonnage of 4,235,185 tons in 1930, and 5,613,080 bushels of grain were shipped as compared with 7,986,898 bushels in 1930.

Irish Harbour Matters

Dublin

Butt Bridge Remains.

THE reconstructed Butt Bridge which spans the River Liffey at the Custom House, Dublin, is to be renamed "Butt Bridge" by the Dublin Port and Docks Board, who have passed a resolution announcing that the bridge would be formally opened by the Most Rev. Dr. Byrne, Archbishop of Dublin. At a previous meeting it had been decided to call it "Congress Bridge," but was objected to and the old name is, therefore, to remain. As a record of the occasion, plates bearing the following inscription in the Irish and the English languages will be placed on the bridge:—"Butt Bridge. Built 1879. Rebuilt 1932, by the Dublin Port and Docks Board, the year of the 31st International Eucharistic Congress," with the names of the chairman of the Board (Mr. C. J. McGloughlin), the Lord Mayor (Alderman A. Byrne), the engineer and the contractor.

Fifty Years' Service.

Mr. John J. Reddin, senior official of the Harbour Dept. of the Dublin Port and Docks Board, has received a presentation on having completed 50 years service with the Board. Capt. Webb, R.N.R., O.B.E., Harbour Master, who made the presentation, said that it was a token of the affection of the whole staff and he wished Mr. Reddin the best of luck and good health for the future and hoped that his association with the Harbour Board would continue for many years. Mr. Reddin belongs to a well-known Co. Dublin family whose associations have always been with the sea.

Galway

Support for Galway Harbour Scheme.

At a meeting of the Galway County Council, it was resolved on the motion of Mr. Corbett, chairman:—

(1) That this Council guarantee a rate not exceeding 4d. in the £ for the development of Galway Harbour according to the scheme prepared by Sir Cyril Kirkpatrick and Sir John Griffiths;

(2) That this Council will not give any guarantee for any lesser scheme unless a definite undertaking be given to the satisfaction of the Council that such lesser scheme is part of the entire scheme, and that the entire scheme referred to in (1) above will ultimately be carried out within the shortest possible period after the completion of the lesser scheme.

The resolution further stated that the guarantee should be subject to certain conditions approved by the Council.

Limerick

Limerick's £100,000 Dock Scheme.

The proposed loan of £100,000 in regard to the Limerick port development scheme, at the time of writing, was still awaiting completion. At a meeting of Limerick Harbour Board a letter from Mr. Hackett, local agent of the Bank of Ireland, drew attention to a condition laid down by the Free State Ministry for Industry and Commerce, before he would consent to issue a guarantee under the Trade Loans Guarantee Act to enable the Board to issue a loan of £100,000 required for the port development scheme. The condition laid down was that the Commissioners should not allocate or permit to be made, any public issue of any securities guaranteed by the Minister, without the written consent of the Minister. The Bank of Ireland, which was to issue the stock in the public market for the Commissioners, objected to the condition formulated.

The letter stated that the condition might seriously interfere with the placing of the securities proposed to be issued, and might therefore render them less attractive. It was further pointed out that when the Bank undertook to underwrite the issue in the first instance, it was contemplated that the public should get an opportunity of subscribing.

Mr. Bourke thought that the conditions laid down were unfair and meant further delay. The Bank should be given a free hand.

Mr. Tracey said that the condition was not unfair as the Minister might be contemplating the issue of a National Loan.

The Board ultimately decided to send a deputation to the Bank agent with a view to asking the directors to waive the clause, if the Minister should persist in retaining his conditions.

Belfast

Belfast Port Affairs.

Though there was a shrinkage in every trading item, the decrease of £22,633 odd in the total receipts for last year of the Belfast Harbour Board was attributed by the ratepayers' auditors mainly to the reduction of rates. The total receipts were £295,944 8s. 8d., and the payments £237,259 18s. 8d., leaving a gross surplus of £58,684 10s.

The report, which was presented at a meeting of the Board, stated that from the gross surplus there fell to be deducted the statutory contribution to the sinking fund of £10,738 16s. 3d., and various items of depreciation totalling £6,486 13s. 11d., leaving a balance of £41,458 19s. 10d., which had been appropriated as follows: £6,000 to the insurance fund, which now stands at £36,147 17s. 10d.; £15,000 to the statutory borrowing account, and the final balance of £20,458 19s. 10d. to the unappropriated receipts. The final balance in 1930 was £38,989 11s. 4d.

On capital account the outlay on the new dock on the Antrim side of the river was £208,795 14s. 7d., which was financed by the issue of £150,000 Belfast Harbour Bonds at £5 per cent. and by withdrawals from the statutory borrowing account. Treasury Bonds to the extent of £53,174 13s. 1d. had been purchased at a cost of £50,057 4s. 11d., and the uninvested cash in hand at the bank was reduced to £80,637 19s. 11d., against £112,043 18s. 6d. at the end of 1930.

During the year £14,970 of the Board's stock had been purchased at a cost of £11,365 6s. 4d. The statutory contribution to this fund and the dividends received amounted to £30,016 12s. 8d.

The report was adopted on the motion of Sir George Clark and seconded by Sir Thomas Dixon.

Imports and Exports.

An official statement has just been issued by the Belfast Harbour Board giving the statistics of goods dealt with at the port during the quarter ending March 31st last, with comparative figures of the corresponding period last year. As indicative of the effect of a tariff on linen, plus the favourable rate of exchange, there has been a sharp upward trend in the exports of this famous Ulster product of almost 1,500 tons, the exact figures being, for the three months this year, 9,235 tons; for the same period in 1931, 7,745 tons.

The figures in regard to flax, the raw material of linen, are also striking. In 1931 the imports came to 3,709 tons, while during the first three months of this year the total was 8,850 tons. Another import industry to register an improvement is the tobacco trade, as the export of the manufactured article was 325 tons higher this year than 1931.

According to the figures, Ulster eggs and bacon were not so popular during the first quarter of this year as last, the egg exports showing a drop of 538 tons, while bacon fell by 350 tons.

The duty on beer and whisky had an effect on consumption, the import of ale and beer showing a substantial decline, while the export of whisky dropped from 756 tons to 534 tons, and the imports fell by 34 tons to 144 tons. Wine imports were also down by 128 tons.

The potato exports were almost the same as last year, the figures being 24,731 tons, while apple growers had a bad time, the exports falling from 3,850 tons to 135 tons.

The imports of deals showed a substantial increase, 5,786 loads being landed compared with 1,601 loads, while, on the other hand, only 219 tons of bricks were discharged, compared with 7,611 tons. Timber imports in the 1931 period totalled 13,697 loads, as against 11,449 loads this year.

Exports of cattle were up, the figures being 17,681 head this year, compared with 16,266 last year. The total of sheep and lambs exported was 8,759, an increase of 2,287. The import of maize rose from 78,000 tons in the first quarter of 1931 to 108,000 tons.

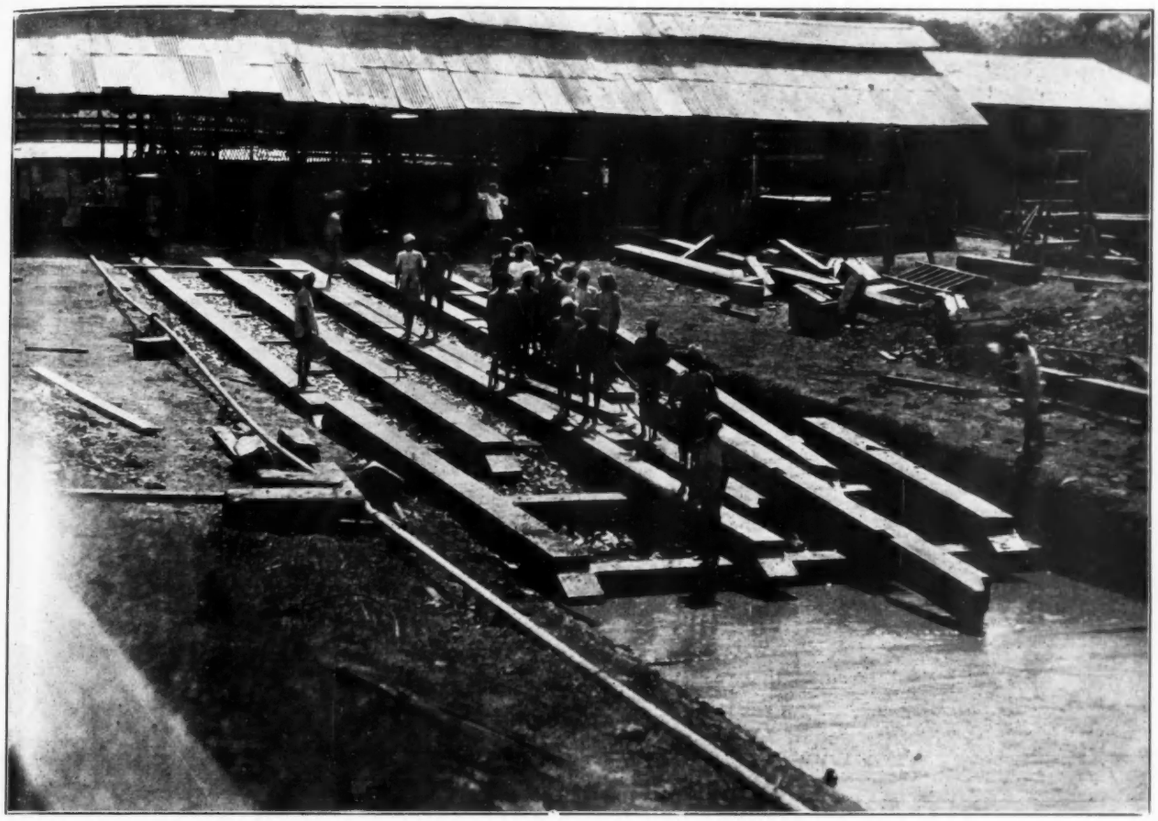
Belfast's Important Position.

Sir Robert Meyer, Town Clerk of Belfast, by request furnished the Secretary at the Custom House, London, with facts and figures relating to the city and port. These were published in the annual statement of trade and shipping and navigation for the year 1930, and showed that Belfast ranked in the ports of Great Britain and Northern Ireland as follows: Customs revenue, collected at ports and collections, 7th; value of merchandise imported and exported (excluding transhipments under bond), 20th; net tonnage of vessels, including repeated voyages, that arrived and departed with cargoes and in ballast, 9th; foreign trade, 9th; coastwise, 2nd. The corresponding figures for the year 1928 were: 6th, 20th, 15th and 3rd.

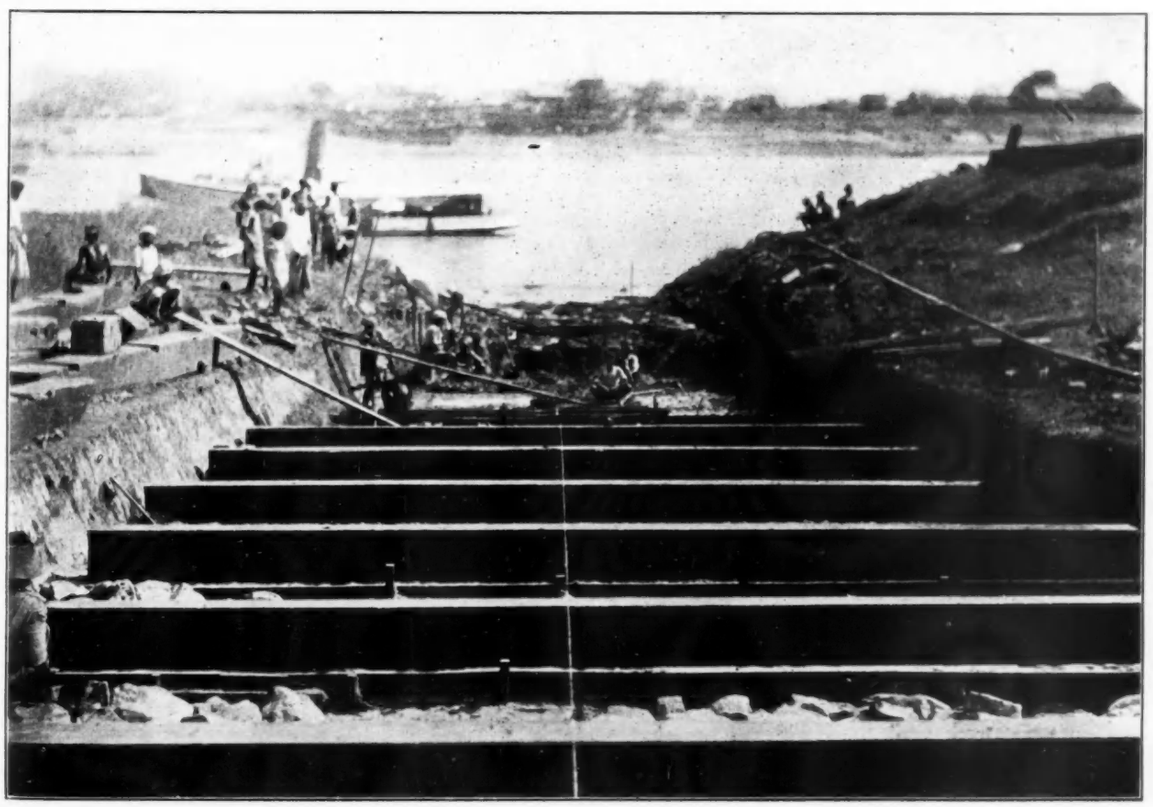
Growing Traffic.

At a meeting of the Belfast Harbour Board on May 3rd, Mr. R. E. Herdman, D.L., presiding, Captain McIntyre (Harbour Master) reported that 292 vessels arrived at the port between April 17th and 30th, made up as follows: Coastwise and cross-channel, 267; foreign, 17; non-trading, 8. The total tonnage of vessels arriving from January 1st to April 30th was 1,183,907, an increase of 31,638.

New Slipway at Rangoon, Burma



The two photographs herewith show a new slipway in course of construction at the yard of Messrs. Bulloch Brothers and Co., Ltd., on the Rangoon River, Burma, where a variety of craft are built for the navigation of the Irrawaddy and coastal waters. The timbers are of Pyinkado (Xylia Dolabriformis), which is chosen because of its combined qualities of extreme hardness and resistance to marine borers. The slipway is 200-ft. long, 16-ft. wide, and has a rake of one inch to the foot.



Near Eastern Port Matters

ACCORDING to statistics which have just been published by the Statistique Générale de Grèce shipping at Greek ports, during the first two months of 1932, included the following items:—

	ARRIVALS				CLEARANCES			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek	131	118,330	136	114,390	33	23,116	53	46,782
American ...	5	16,619	5	15,969	6	20,031	4	13,456
British ...	34	81,095	42	107,844	25	48,345	34	52,515
Dutch ...	10	26,885	7	11,085	5	7,707	11	10,715
French ...	23	67,514	19	56,581	20	67,958	18	56,309
German ...	14	21,284	15	21,515	8	10,426	13	19,813
Italian ...	137	306,982	145	328,706	115	259,453	139	309,853
Roumanian ...	23	26,809	14	18,350	21	26,395	15	18,960
Other Flags ...	459	773,339	468	789,244	297	565,761	345	623,203

Italy still occupies first place among foreign flags trading at Greek ports, followed by Great Britain, France, Holland, Roumania, Germany and United States of America. A slight increase has been noticed in the net register tonnage arrived, but this is simply the result of a larger volume of Greek merchant tonnage being laid up, as is shown by the fact that a corresponding progress has not been noticed in the tonnage cleared. The only foreign countries which have increased the share of their business in Greek ports has been France, Holland, Roumania and the United States of America. Even Germany, which used to hold an important position in shipping at Greek ports has lost considerable ground during the first part of 1932.

However, in order to obtain an idea of the situation it may be interesting to consider the figures regarding shipping during the January-February period at each of the most important Greek ports:—

PIREAUS	ARRIVALS				CLEARANCES			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	62	60,977	85	83,945	21	14,921	27	25,152
American ...	5	16,619	5	15,969	—	—	1	3,119
British ...	24	64,366	31	85,678	9	26,374	14	25,144
Dutch ...	6	23 554	2	2,853	—	—	1	628
French ...	20	66,341	19	56,581	19	65,771	18	56,399
German ...	8	9,925	11	15,477	2	2,125	1	941
Italian ...	67	162,405	59	142,345	58	141,600	60	135,026
Roumanian	22	26,459	13	16,000	20	25,611	14	17,508
Other Flags	39	79,453	42	89,067	37	80,039	33	74,793

The situation of the general shipping statistics is reflected in the above-mentioned figures concerning the Port of Pireaus where, however, progress is noticed in the Italian flag both in regard to tonnage arrived and to tonnage cleared. As a matter of fact Italian lines have increased callings at Greek ports during the first part of 1932. The economic crisis of the country has rendered things as difficult as ever in the Port of Pireaus, and, it is pointed out that, under such circumstances, it will be very difficult to ascertain whether the new harbour organisation is to prove of advantage to shipping.

The situation of Salonika is resumed as follows:—

SALONIKA	ARRIVALS				CLEARANCES			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	11	18,122	5	4,950	2	4,492	4	4,668
American ...	—	—	—	—	3	10,281	1	3,119
British ...	4	5,528	2	6,338	7	11,465	9	9,119
Dutch ...	1	1,031	2	3,782	—	—	—	—
French ...	1	185	—	—	—	—	—	—
German ...	2	3,836	1	1,863	1	1,685	4	6,421
Italian ...	4	9,833	6	11,257	7	12,080	10	20,978
Roumanian	1	350	1	350	—	—	—	—
Other Flags	5	5,635	7	5,522	7	7,436	6	6,970

The general decrease in the participation of foreign flags to the shipping of the Port of Salonika is due above all to the depression in the tobacco trade, which is developed particularly through the Port of Salonika. No less interesting has been the development of trade through the Port of Patrass, which can be summarised as follows:—

PATRASS	ARRIVALS				CLEARANCES			
	1932		1931		1932		1931	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
Greek ...	1	39	2	2,210	—		2	4,995
American ...	—	—	—	—	2	6,713	—	—
British ...	5	9,028	4	5,574	5	7,443	4	5,030
Dutch ...	2	1,405	2	2,881	1	1,559	—	—
German ...	2	3,836	—	—	—	—	1	1,418
Italian ...	12	43,566	18	74,372	4	32,762	13	68,125
Other Flags	16	10,467	16	13,398	—	—	1	1,097

While at other Greek ports the British flag has shown a decline, at Patrass, where all other foreign countries have shown a loss, the British flag has shown a considerable increase due mainly to the increased callings of steamers of the Cunard Anchor Line engaged on Mediterranean services.

The Office Central de Statistique de la Présidence du Conseil de la Republique Turque has published the full statistics regarding shipping at Turkish ports, which may be condensed in the following schedule:—

ISTAMBUL	ARRIVALS AND CLEARANCES					
	Turkish Flag		Foreign Flags		Total	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
1924	30,146	1,833,971	4,019	5,445,007	34,165	7,278,978
1925	32,865	3,199,057	4,981	8,796,687	37,846	11,995,744
1926	29,473	3,710,535	6,546	11,220,922	36,019	14,931,457
1927	23,197	3,490,466	6,054	10,386,653	29,251	13,877,119
1928	28,850	4,464,225	4,696	8,667,338	33,546	13,131,563
1929	23,773	4,625,821	4,526	8,703,947	28,299	13,329,768
1930	26,024	4,909,305	5,059	9,610,051	31,083	14,519,356

It should be noted that while in 1924 the share of the Turkish flag in shipping at Istambul reached 25.80 per cent. in 1930 it reached 33.81 per cent. of the total tonnage arrived and cleared from that port, while the share of foreign flags decreased from 74.20 per cent. in 1924 to 66.19 per cent in 1930. This situation is due to a great extent to Turkey monopolising the coastwise trade along the Turkish coasts. Matters have been practically identical at Smyrna, the figures for 1930 being as follows:—

	ARRIVALS AND CLEARANCES					
	Turkish Flag		Foreign Flags		Total	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
1930*	10,285	2,401,452	4,315	2,219,044	14,600	4,620,496

*Including Mersina

The progress of the Turkish flag at Smyrna has been even more pronounced than at Istambul, its share having increased from 31.24 per cent in 1924 to 51.74 per cent. in 1930, while the foreign share has decreased from 68.76 per cent. in 1924 to 48.26 per cent. in 1930. Only a small portion of tonnage has been anchored along the quays, most of the trade being handled in the fairway.

The situation has been practically identical in the Turkish Black Sea ports, and, it may be interesting to examine the figures regarding Samsoun for 1930:—

	ARRIVALS AND CLEARANCES					
	Turkish Flag		Foreign Flags		Total	
	No.	N.R.T.	No.	N.R.T.	No.	N.R.T.
1930	26,245	6,797,860	401	567,159	26,645	7,365,019

The decrease in the share of foreign ships must be attributed to the depression of trade, which attracted foreign shipping to other Black Sea ports, and to the important share of business handled in transhipment through the Port of Istambul. Of course, one of the main reasons of this can be found in the difficult situation of the harbour, as there are no harbour facilities, and anchorage is dangerous during the periods of rough seas. However, it is expected that matters will improve when railway connections in the hinterland of Samsoun are completed.

According to information received matters are going from bad to worse in Turkish ports, and it is stated that not even the Municipal Authorities are in a position to undertake the most necessary harbour improvements at leading Turkish ports.

Following statistics which have just been published, shipping at Alexandria (Egypt) during the first quarter of 1932 included the calling of 116 British ships, 103 Italian, 39 Greek, 32 French, 30 German, 20 American, 19 Swedish, 18 Roumanian, 16 Norwegian, 15 Turkish, 15 Egyptian, 11 Russian, 9 Dutch, 8 Japanese, 7 Belgian, 8 Bulgarian—that is a total of 466 ships, including sailing vessels, against 444 during the corresponding period of 1931. It should be noted that the American flag has greatly increased its activity in Egyptian waters, and that both French and Italian lines are showing considerable interest to attract some of this business for their own lines. The tonnage of American ships arrived at Alexandria has increased from 291,106 n.r.t. in 1930 to 435,766 n.r.t. in 1931. It is announced that the Italian harbour engineering advisor to the Alexandria Harbour Authority will again visit that port in the course of the next few weeks, in order to study an important project of further enlargements to be carried out, and to supervise the works under construction. These investigations have to be carried out because of the competition which the Port of Alexandria will have to face after the completion of the oil piping and docking facilities which are being built at Haifa by the Irak Petroleum Co. The Egyptian Government has already taken into consideration a report, which has been prepared by the Egyptian Under-Secretary of State for Communications, on the subject, and it would appear that a decision will shortly be made in regard to the construction of a large new oil dock at Alexandria in order to ensure the future calling of tankers at that port. It would appear, furthermore, that some new electric cranes are to be built at Alexandria.

Near Eastern Port Matters—continued

The Jugoslav Government has considered the opportunity of further reducing harbour charges at Jugoslav ports in order to make calls at their harbours more advantageous. However, in view of the shipping depression, the general bonded stores at certain Jugoslav ports—the construction and the organisation of which have been in progress during 1931—have not been inaugurated as yet. Dry docking of large tonnage is still undertaken at foreign ports, in spite of the fact that the newly-organised shipbuilding industry has purchased an old dry dock in Holland.

Scottish Harbour Notes

Meeting of Clyde Navigation Trustees.

An interesting discussion on the question of trade development took place at a recent meeting of the Clyde Navigation Trustees. Mr. John Stewart (referring to a paragraph appearing in the minutes of the Committee on Traffic and Storage which stated that the Commercial Manager had submitted a quarterly report) asked if there was any radical improvement in trade since the appointment of the Commercial Manager, and if there was any likelihood of the Trust getting any information as to what that improvement was. He (the speaker) thought they were entitled to know whether there was any development, or whether they were merely marking time. Mr. William McDonald (convener of the Committee) said that the report was considered by the Committee, and in the present circumstances they could not just point to any great trade development during the last three months. He did not think it was within the compass of any man to make big developments at the present juncture, but there were certain things which the commercial manager had done. Mr. Stewart said he regarded the answer as satisfactory.

At the same meeting of the Clyde Navigation Trustees the question of week-end watches on dredgers was under discussion. It was reported in the minutes of the General Purposes Committee that the general manager and other officials of the Trust had had a meeting with certain sections of the employees, accompanied by officials of the Transport and General Workers' Union, in regard to the conditions of service of these employees. The chief matter which had been discussed was the reserve week-end and night watches on the dredging plant. In regard to the dredgers it was stated that the members of the crew desired the reserve and week-end watches on the dredgers to be kept by special watchmen to be kept for that purpose, while in connection with the hopper barges, it was stated that the members of the crews wished to continue their watching of the barges. The Committee were of opinion that the present system of watching on board the dredgers—of which each employee was made aware when he entered the service and which had been under consideration by the Committee on previous occasions—should be continued.

Inverness Harbour Trustees and Extension Work.

Various matters in connection with the extension work at the local harbour were under consideration at a recently held meeting of Inverness Harbour Trustees. Tenders were submitted for the uplifting of the excavations with 2,000 tons of stones and rubble, and the tender by Messrs. Clark and Chapman, of Aberdeen, who are the contractors for the extension work, at the price of 7s. 6d. per cubic yard, was accepted. It was reported that the collections at the local harbour over the preceding 34 weeks had amounted to £2,400, which was an increase of £225 over the same period the previous year. The feeling was expressed that when the extension scheme is completed this will be very helpful as far as trade is concerned at the harbour, and that good results are bound to follow.

Relationship of Ports and Shipping in Scotland to the Development of Trade.

Mr. Harold M. Ford (Commercial Manager of the Clyde Navigation Trustees) recently addressed the members of the Glasgow Rotary Club on the relationship of ports and shipping in Scotland to the development of trade. A ready and able speaker, Mr. Ford expressed his views in very clear-cut and concise fashion, and his address was followed with the closest possible attention. In the course of his remarks Mr. Ford expounded the view that the advertising of the Port of Glasgow and its facilities would tend to the promotion of industrial recovery and commercial revival in the country. He held that Glasgow must advertise to compete with other successful ports in the United Kingdom. "I take off my hat to the Port of London Authority," he declared. "No public body anywhere in the world has shown such vision, energy, and courage as the Port of London Authority in the policy which it has pursued so consistently and persistently during the past ten or fifteen years."

In addition to improved facilities, reconstruction and new docks, the Port of London (Mr. Ford proceeded) was trying to attract by every possible means new trade to the locality, and the amount of advertising done by the port authority ran into colossal figures. Side by side with London there was no more go-ahead undertaking in the United Kingdom than that of the Manchester Ship Canal. Manchester was very lucky in having Liverpool at its door, and it would have been a very good thing if Glasgow had had a Liverpool at its doors rather than a Gourock. (For the benefit of readers it should be explained that Gourock is a comparatively small seaside resort). "A policy which rests content with the provision of docks, cranes, hoists, and other facilities to await the coming of trade," commented Mr. Ford, "is not enough. That sort of outlook is ruinous of the hope of being in the forefront of British ports. Positive action has to be taken to ensure that shipping is duly aware of all the advantages which the well-equipped Port of Glasgow has to offer."

Aberdeen Harbour Board and Reduction in Dues.

Speaking at a recently held meeting of Shetland Agricultural Advisory Committee, the Chairman (Mr. W. Laidlaw MacDougall) stated that he had been inundated with complaints from people introducing day-old chicks to the Shetland Islands regarding enormous freight charges from Aberdeen. "Shore dues at Aberdeen and freight north," he added, "total 25s. per 150 chicks, which is nearly as much as the price of the birds. I understand that the North of Scotland Shipping Company are willing to reduce their charges, but Aberdeen Harbour authorities decline to make any reduction of their shipping dues." Mr. G. G. Esslemont (Aberdeen) suggested that strong representations be made to Aberdeen Harbour Board, and this was unanimously agreed to.

New Dry Dock for Glasgow.

In the latest issue of the official journal of the Glasgow Chamber of Commerce there appears an interesting aerial view of the new dry dock which is in course of construction by Messrs. Barclay, Curle and Co., and this illustration gives a rather remarkable indication of the work in progress. It is pointed out in the accompanying letter-press that this dock, which will be parallel to the firm's existing dry basin at Scotstoun, will have a length of about 620-ft., a width at the entrance of 85-ft., and a depth of water of 28-ft. at average high water spring tides. It is intimated (as has already been indicated in these jottings) that the total scheme will cost about £500,000.

Bremen's Seagoing Shipping Traffic

Sea-going shipping traffic for Bremen account in March amounted incoming to 636,900 net registered tons. This was 76,300 net registered tons, or 14 per cent. more than in the previous month. However, it must be remembered that figures in February are always lower. Compared with March, 1931, there was a decrease of 25,100 net registered tons during the month under report. During the first quarter of 1932 altogether 1,863,700 net registered tons, against 1,963,100 net registered tons in the same period of the previous year arrived. This is a decrease in traffic of 5 per cent.

Sea-borne goods traffic of the five most important Weser ports only showed a slight improvement over February, for imports, at 239,800 tons, were 10,000 tons, which equalled 4 per cent more, and exports at 136,200 tons, 4,600 tons—3 per cent. Compared with March of the previous year imports were 31,400 tons, or 11 per cent., and exports 29,700 tons, or 18 per cent. less.

During the first quarter of 1932, altogether 1,129,700 tons were imported and exported. Thus traffic has decreased compared with the same period of last year by 116,800 tons, or 9 per cent. Importation at 723,600 tons was 15,900 tons, or 7 per cent. less. Besides considerable decrease in piece goods transport, the decrease in the importation of timber and ore was decisive for this. Some goods, including cotton and wool and rice, showed increases, but this did not balance the decrease. Exportation, at 397,100 tons, was 60,900 tons, or 13 per cent. less than in the previous year. Here, also, the chief reason for the large decrease was the fall in piece goods, added to which there was a considerable reduction in the exportation of potash.

French and Spanish Harbour Matters

ACCORDING to statistics which have been supplied by the Chamber of Commerce and Industry at Barcelona the following is a statement of the progress of trade at the leading Spanish port in the course of the last twenty years:—

	No. of Ships	N.R.T.	Goods Unloaded Tons	Goods Loaded Tons
1910	3,424	3,702,067	1,662,299	476,735
1911	3,823	3,853,446	1,825,699	480,585
1912	3,866	3,876,680	1,868,245	530,815
1913	4,192	4,136,055	2,417,282	547,730
1914	3,691	4,021,079	2,206,879	537,933
1915	3,546	3,413,045	1,978,849	542,867
1916	3,491	2,910,292	1,861,550	605,878
1917	4,297	2,251,840	1,486,111	670,609
1918	4,293	1,941,359	1,477,227	519,525
1919	3,660	2,469,726	1,265,311	595,980
1920	3,566	2,602,016	1,607,285	497,767
1921	3,964	3,436,791	1,626,588	425,722
1922	3,909	3,640,503	1,851,237	427,368
1923	4,135	4,167,577	2,099,467	400,990
1924	4,206	4,362,424	2,131,226	445,643
1925	4,195	3,956,066	2,210,618	497,545
1926	4,313	4,512,813	2,310,404	561,233
1927	4,566	4,730,925	2,259,272	672,636
1928	5,218	5,558,839	2,942,162	728,350
1929	5,476	6,917,944	2,988,469	701,512
1930	5,325	7,142,565	2,956,626	754,760

It will be seen that considerable progress has been made both in the number and tonnage of ships calling at Barcelona since 1914, while the volume of goods unloaded has shown an increase of about 750,000 tons and goods shipped an increase of about 220,000 tons. After the war both imports and exports have shown a much more noticeable increase, and this fact, besides the augmented passenger trade, explains why the number and tonnage of ships calling at Barcelona has risen.

The situation of the Port of Valencia has improved considerably since the end of 1931, when the Sociedad de Construcciones y Obras Publicas completed the construction of the two outer breakwaters. During the period 1924-1932 the Eastern and Western Moles have also been completed, and the depth of water in the Port of Valencia has been increased from 11 to 14 metres, so that large liners can call there.

During April, 1932, shipping at Dunkerque included the calling of 247 ships, representing 446,635 n.r.t., carrying 398,890 tons of goods, showing a decrease of 46 ships and 71,103 n.r.t. and an increase of 11,645 tons of goods against the corresponding month of 1931.

The Chamber of Commerce of Boulogne-sur-Mer is considering the question of increasing the unloading and storage facilities, and upon the request of the Shipowners' Association it has been decided to purchase three new electric cranes. Additional improvements in connection with the electric cranes and railways are to be carried out on the Quai du Louvre and on the Quay Gambetta. According to statements made in foreign shipping quarters at Boulogne-sur-Mer the increase of unloading facilities has enabled record despatches of ships to be made recently, and this fact has induced owners to consider the increase of calls at that port.

Shipping at Rouen during the month of April, 1932, has shown an improvement in respect to the previous months of this year, while it has shown a slight depression in respect to the corresponding period of 1931, as will be noticed from the following figures:—

	APRIL	
	1932	1931
Ships arrived	373	316
Imports (Tons)	628,226	641,585
Ships cleared	88	99
Exports (Tons)	55,582	77,096
Total Traffic (Tons) ...	683,808	718,681

The figures for the first four months of this year are less than for 1931, but can be considered satisfactory taking into consideration the general depression of shipping:—

	JANUARY-APRIL	
	1932	1931
Ships arrived	1,323	1,324
Imports (Tons)	2,254,980	2,678,550
The main Imports are as follows—		
Coal (Tons)	1,143,149	1,657,827
Oil (Tons)	454,443	387,252
Phosphates and Minerals (Tons)	125,111	126,223
Woodpulp and Paper (Tons)	80,728	89,170
Lumber (Tons)	43,060	55,859
Wines, etc. (Tons) ...	186,737	221,808
Ships cleared with cargo ...	359	395
Exports (Tons)	219,123	267,203
The main Exports are—		
Oil (Tons)	36,099	43,092
Building materials ...	48,147	59,436
Total Traffic	2,474,103	2,945,753

During the last meeting of the Chamber of Commerce and industry of Caen some proposals which have been put forward by the Pilots' Association of Caen were considered, and it was decided to improve the lighting services in the New Basin and in the narrow passage between Tournebourse and Bénouville. According to statistics which have just been published, shipping at Caen during the month of April, 1932, included the arrival of 55 French ships and 9 foreign ships. Among the goods imported by French ships there were 60,308 tons of coal, 1,645 tons of building materials, 1,798 tons of chemical fertiliser, 150 tons of pig iron, 1,654 tons of agricultural products, and 2,836 tons of general cargo; that is to say, a total of 68,391 tons, against 80,599 tons of goods imported during the month of March. Among the goods imported by foreign ships there were 5,470 tons of coal, 1,970 tons of fertiliser and pyrites, and 1,255 tons of industrial products—that is a total of 8,695 tons. Total import shipping at Caen during the month of April, 1932, was 77,086 tons, against 98,573 tons during the month of March, while exports from Caen during the month of April totalled 30,231 tons.

The statistics concerning shipping at St. Nazaire during April, 1932, show the arrival of 59 ships representing 53,049 n.r.t. carrying 40,513 tons of goods and 566 passengers, and the clearance of 61 ships representing 59,007 n.r.t. carrying 7,879 tons of goods and 318 passengers.

Over 150 metres of new quayage served by several 5 tons electric cranes have been placed at the disposal of trade and shipping in the eastern section of the Port of Brest by the Ponts et Chaussées Administration. This quayage includes large open storage space.

According to statistics which have just been published by the Chamber of Commerce and Industry at Nantes, the following is a schedule of trade handled at that port during the month of March and during the first three months of 1932.

	MARCH			JANUARY-MARCH		
	1931	1932	Difference	1931	1932	Difference
N.R.T. ...	282,222	267,131	—15,091	913,627	753,316	—160,301
Goods (Tons)	238,036	208,219	—29,787	736,719	584,160	—152,559

Shipping at La Rochelle during the month of March, 1932, included 84,552 tons of imports and 2,873 tons of exports, that is a total of 87,425 tons, against 76,476 tons during the month of March, 1931. Figures for the first quarter of 1932 are no less interesting, since the total trade reached 237,206 tons, against 204,125 tons during the corresponding period of 1931, with an increase of 33,081 tons, that is 16 per cent. This increase is due chiefly to larger imports of nitrates, reaching 15,976 tons against 7,008 tons, of oil with 33,638 tons against 13,072 tons, and of cereals with 15,203 tons against 3,206 tons. During the month of April, 1932, trade has not been so satisfactory, since imports during that month included 68,966 tons and exports 4,240 tons, that is a total of 73,206 tons against 88,794 tons during the month of April, 1931. This depression, however, has not influenced the figures regarding goods handled during the first four months of 1932, since it has reached a total of 301,182 tons against 292,919 tons in 1931, an increase of 8,263 tons.

The Chamber of Commerce and Industry at Marseilles has supplied figures for shipping at that port during the first four months of 1932, and which are summarised as follows:—

	1932	1931	1913
ARRIVALS.			
Number of Ships ...	2,418	2,560	2,773
Net Register Tonnage ...	4,812,678	4,905,594	3,328,937
Tons of Goods	1,457,084	1,603,144	1,862,893
Number of Passengers ...	87,534	97,109	74,296
CLEARANCES.			
Number of Ships ...	2,429	2,596	2,747
Net Register Tonnage ...	4,851,354	4,907,873	3,328,841
Tons of Goods ...	621,173	760,775	997,093
Number of Passengers ...	77,339	82,928	65,598

The total volume of cargo handled in the Port of Marseilles during the first four months of 1932, reached 2,078,257 tons, against 2,363,919 tons during the corresponding period of 1931, thus showing a decrease of 285,662 tons. The Marseilles Chamber of Commerce has authorised the enlargement of the Quai Verminck at Caronte, and has granted to the Compagnie Française de Raffinage a concession to establish in the Boutier zone of the Marseilles-Rhone Canal, a small port for lighters to be used for transporting oil and other products for their refineries.

Figures regarding shipping at French Colonial ports during 1931 are now being published, and the statistics of trade at Dakar are as follows:—

	ARRIVALS			CLEARANCES		
	No.	N.R.T	Goods Tons	No.	N.R.T.	Goods Tons
1931	2,402	3,699,794	424,524	2,385	3,705,117	376,710
1927	2,243	2,938,199	418,626	1,975	2,786,747	313,233

French and Spanish Harbour Matters—continued

Whilst the quantity of oil shipped as bunkers has increased from 90,898 tons in 1930 to 119,299 tons in 1931, the quantity of coal has decreased from 148,698 tons in 1930 to 107,885 tons in 1931. This fact clearly shows the difference that oil instead of coal bunkering has made to the trade of this port. The use of oil has enabled the large liners employed on the express services between Mediterranean ports and South America to omit calling at Dakar for bunkering purposes, since they carry sufficient bunkers for the whole trip, but this has not affected the development of shipping at this port, in view of the increasing activity which has been noticed in the course of the past few years in shipping between European ports and West Africa.

The French Colonial Office has published statistics for shipping at Conakry during 1931, where ships arrived and cleared included the following items:—

	1931	1930	1929
Ships arrived and cleared ...	7,295	6,214	6,000
Goods Unloaded (Tons)	45,980	56,872	45,332
Goods Shipped (Tons)	33,993	38,633	35,157

Hull and the Humber

Bridge Bill to Proceed Despite Protests.

IT apparently does not follow that because the Government offer of a 75 per cent. contribution towards the construction of a road bridge across the Humber between Hull and North Lincolnshire has been withdrawn, the scheme is to be allowed to lapse. On the contrary, strenuous efforts are being made to raise the money necessary to the project by private means, the suggestion being the issue of £2,000,000 5 per cent. debentures issued at something below par and redeemable 40 years hence at par. According to a statement made by Alderman Richardson, chairman of the Hull Corporation Committee dealing with the matter, the financial people with whom the proposal was discussed, decided that the inducement to be offered to investors would be materially improved if the Government would guarantee the interest and sinking fund on those debentures. A reply had since been received that the Government found it impossible to give any such guarantee. It was thereupon suggested that the end might be achieved if the local authorities concerned, including Hull, were willing to guarantee no service of the debt, namely, the interest and sinking fund, for a period of ten years with a power of recoupment. If the tolls charged failed to realise sufficient to pay the interest and sinking fund, the local authorities of which Hull was the largest would for ten years have to make up the difference with the power of recouping themselves if surveys were available in subsequent years.

As regards that guarantee the estimated cost of interest and sinking fund plus maintenance of the bridge is £134,000. With regard to revenue Sir Henry Maybury had stated to the House of Commons Committee that the estimated revenue for the first year would be £135,000. The estimate for the second year was £154,000 and the third year rising to £200,000 in 1941. Strong opposition to the proposal that the Corporation should proceed with the Bill was voiced by Councillor Cargill who emphasised the view of the Humber Conservancy Commissioners that the bridge would endanger navigation in the Humber and said that it was conceivable that £2,000,000 would be required to be spent on training walls suggested by the House of Commons Committee. Another speaker criticised the Humber Conservancy and the Hull Chamber of Commerce as supporters for many decades of a policy of negation. In the end the amendment against the scheme was rejected, as was also one to limit the liability of the Hull Corporation to the amount realised by a twopenny rate. The minutes were then approved and the Corporation is authorised to proceed with the promotion of the Bill on the amended lines indicated.

The report of the Humber Conservancy Commissioners makes reference to the Humber Bridge Bill and to the advice of eminent experts on which the Board reached their decision that the piers of the proposed bridge might result in irreparable damage to the channels both above and below the bridge and that the structure would constitute a grave obstruction to navigation. The chairman of the House of Commons Committee is quoted as saying that the committee felt very strongly that the construction of training walls should go hand in hand with the construction of a bridge if a bridge is built.

Sir Lynden Macassey, K.C., however, explained that the Conservancy Board could not possibly be committed to the expenditure of anything like the large sum which the construction of training walls would inevitably involve. After considering the Bill in the form in which it left the House of Commons Committee, the Board were even more decidedly of opinion than before that the construction of the proposed bridge might be injurious to the Humber and its navigation, and that it is their bounden duty to continue to oppose the passage of the measure by every means in their power and to absolve themselves from any responsibility for grave risks which the bridge might cause to the channels, both above and below the bridge and to shipping.

Annual Meeting of the Humber Conservancy Commissioners.

In his speech at the annual meeting of the Humber Conservancy Commissioners, Mr. J. H. Fisher, the chairman, referred to the Trent Falls improvement works which are being carried out by the Aire and Calder Navigation. The maximum cost to be borne by the Board is £76,000, and of that, he said, rather more than £53,000 had already been paid to the Aire and Calder Navigation, leaving a balance of £23,000. Mr. Fisher added that the Aire and Calder Navigation were required to complete the whole of the works in rather more than two years' time. During the year an unusually large number of applications for permission to carry out works in the Humber were received. The Marine Committee, he went on, had had before them a case of a kind they had not had before, viz., the case of the steam trawler "Lucerne," which sank in the open sea 6½ miles to the eastward of Spurn Point in a position several miles seaward of what had always been regarded as the limit of the Conservancy's Board's jurisdiction. The Board of Trade, however, on being appealed to by the London Trinity House by deciding as they did that the wreck was lying "in or near an approach to the river," saddled the Conservancy Board with the responsibility of dealing with it. This decision was much to be regretted and was the more unsatisfactory because the Board of Trade did not lay down what "the approaches to the river" are, but left each case of a wreck to be considered on its merits. Consequently whenever a wreck occurred in the vicinity in future there would be the inevitable delay in obtaining the decision of the Board of Trade. Notwithstanding all that the Marine Committee had done in the matter the Board of Trade resolutely maintained their decision. Mr. Fisher intimated that on the recommendation of the Marine Committee, the Board were installing electric foghorns on the unattended light floats in the upper Humber, thus providing further valuable aids to navigation. The revenue of the Conservancy last year, the chairman said, was disappointing. The normal receipts were only £37,405 which (on account of the fall in the yield from shipping dues) was £3,384 less than in 1930. The net expenditure, after deleting £11,488 for capital payments was £38,389, an increase of £6,459, attributable to the expenses incurred by the Board in opposing the Humber Bridge Bill.

With regard to the Humber Bridge Bill the chairman drew attention to a statement appearing in the Press, to the effect that the Minister of Transport had announced that he could not bind the Government to give any financial assistance towards the scheme; and also that the Humber Bridge Committee of the Hull Corporation had considered a proposed financial arrangement under which the scheme might go forward and had appointed a sub-committee to proceed with negotiations. Mr. Fisher said that all he need add to his protest was that what the House of Commons approved was the preamble of the Bill which made provision for 75 per cent. of the cost to be borne by the Ministry of Transport. Now that the Minister had stated he could not bind the Government to give financial assistance towards the proposal how, he asked, could the preamble stand. He could only think that the preamble must go and that it would be absurd to think otherwise.

The statistics relating to Humber pilotage furnished by the Conservancy Board show that in the Humber area there were last year 81 pilots and that the number of vessels piloted was 12,223 and the gross earnings £57,604, an average of £711 for each pilot. In 1930 the number of pilots was 83, the vessels piloted 13,272 and the gross earnings £63,231, the average pilot being £761. In 1929 the average was £716. In the Goole waters there were engaged 14 pilots and the number of vessels piloted between Hull and Goole 2,840. The gross earnings being £7,484, an average of £524. In 1930 the total was £7,220 and the average £515.

Italian Harbour Affairs

ACCORDING to statistics, which have been published by the Istituto Centrale di Statistica, shipping at Italian ports during the first quarter of 1932, included the arrival and clearance of 104,314 ships representing 37,678,536 n.r.t. carrying 7,286,225 tons of goods and 1,624,959 passengers against 98,934 ships representing 36,351,218 n.r.t. carrying 7,825,375 tons of goods and 1,709,689 passengers during the corresponding period of 1931. It should be noted that while goods imported during the period in question have shown a decrease of 438,445 tons, goods exported have shown a decrease of only 190,491 tons, which can be considered satisfactory, especially if coupled with the fact that while on March 31st, 1931, total goods imported and exported through Italian ports had shown a decline of 1,160,847 tons, on March 31st, 1932, the decline reached 539,150 tons, confirming that the crisis has reached the end in this country, and that a revival will soon set in. However, in order to complete the study of the situation of Italian ports, it may be advisable to consider the figures regarding the position of each particular port:—

ARRIVALS AND CLEARANCES

	Jan. March	No.	N.R.T.	Goods Arrived Tons	Goods Cleared Tons
Savona ...	1932	605	625,706	354,345	48,613
	1931	577	531,811	312,360	43,685
Genoa ...	1932	2,135	4,504,031	1,232,416	215,675
	1931	2,263	4,888,396	1,499,876	222,458
Leghorn ...	1932	1,453	1,865,195	306,379	90,130
	1931	1,558	1,750,604	284,118	83,113
Civitavecchia	1932	572	870,941	211,359	18,953
	1931	589	889,933	207,757	17,035
Naples ...	1932	4,115	4,654,954	384,072	92,635
	1931	4,168	4,777,197	398,911	104,928
Brindisi ...	1932	588	1,251,343	28,904	1,927
	1931	663	1,045,395	34,584	3,710
Bari ...	1932	770	686,636	88,411	10,805
	1931	719	672,826	67,966	15,539
Ancona ...	1932	718	593,581	76,545	4,927
	1931	825	533,607	117,823	10,377
Venice ...	1932	1,759	2,128,386	450,847	97,993
	1931	1,433	1,761,837	476,081	130,102
Trieste ...	1932	7,124	2,638,290	410,873	138,870
	1931	6,552	2,263,770	415,394	179,144
Fiume ...	1932	2,465	978,393	56,306	46,654
	1931	2,606	1,092,509	75,867	67,137
Messina ...	1932	1,752	874,894	71,603	26,902
	1931	1,649	1,039,697	—	30,095
Catania ...	1932	1,216	969,109	93,162	40,190
	1931	1,059	959,755	89,227	53,236
Syracuse ...	1932	625	676,788	20,264	13,734
	1931	537	729,004	13,007	13,153
Palermo ...	1932	2,482	1,665,814	105,152	38,345
	1931	1,132	1,874,903	126,104	41,997
Cagliari ...	1932	458	451,209	47,865	71,407
	1931	574	431,507	58,060	69,325

It can be seen from the above figures that the situation differs in the various ports, which fact shows that conditions are not too bad. Both imports and exports have shown an increase at Savona, Leghorn and Syracuse, while imports have shown an increase at Bari and Catania. Shipping at Trieste has shown a decline of 44,795 tons, while shipping at Venice has shown a decline of 57,343 tons. The largest decrease has been noticed in shipping at Genoa, where imports and exports declined by 270,243 tons, that is to say about 60 per cent. of the total decline of Italian shipping taken as a whole. In contrast to the decrease of shipping at Genoa, trade at Savona and Leghorn has increased and there is reason to believe that the depression at Genoa is more than anything else the result of competition of the two neighbouring ports.

It may be interesting to examine the figures regarding the main items of goods unloaded and loaded at the chief Italian ports, during the first quarter of 1932, compared with the figures for 1931:—

	Coal		Cereals		Cotton	
	1932 Tons	1931 Tons	1932 Tons	1931 Tons	1932 Tons	1931 Tons
Genoa ...	501,674	671,510	183,639	247,296	56,493	39,183
Savona ...	266,490	298,734	1,503	670	—	102
Leghorn ...	172,902	157,582	24,761	21,866	945	425
Civitavecchia	144,361	151,309	13,140	21,036	—	—
Naples ...	175,338	158,902	88,033	130,523	2,912	1,771
Palermo ...	25,169	55,154	270	10,403	—	—
Catania ...	13,591	35,865	15,581	21,205	—	—
Trieste* ...	31,777	55,475	20,284	1,593	22,587	4,978
Fiume ...	5,840	7,298	1,122	760	707	313
Venice ...	201,169	225,315	37,579	51,027	16,638	10,605
Ancona ...	30,049	84,337	13,404	9,579	—	—
Bari ...	31,808	26,298	19,008	17,518	—	—

*January only.

During the period from January to March, 1932, imports of coal have shown a general decline with the exception of Leghorn, Naples and Bari, while cereals have shown a decrease everywhere with the exception of Savona, Trieste, Fiume, Ancona and Bari. If this fact is compared with the general increase of imports at Savona, Leghorn, Catania, Syracuse and Bari it can safely be said that, with the exception of Leghorn, the progress has been the result of an improved activity of the general cargo trade. Another satisfactory item of the situation is represented by the increased imports of cotton, which shows an increased activity in Italian industries, and this factor is bound to lead sooner or later to larger imports of other commodities, especially since the progress of the cotton imports is followed also by an increase in the imports of wood-pulp, oil seeds, etc. There is a big decrease in the coal and cereal imports, at the two leading Sicilian ports, Palmero and Catania.

Further light is thrown on the situation of Italian shipping by the figures for the month of April, 1932, which have just been published by the Instituto Centrale di Statistica at Rome. According to these figures 15,714 ships representing 6,614,398 n.r.t., carrying 2,038,030 tons of goods and 302,873 passengers arrived at Italian ports during April, 1932; against 15,912 ships, 6,427,831 n.r.t., 2,063,137 tons of goods and 355,330 passengers arrived during April, 1931; and 15,743 ships representing 6,763,939 n.r.t. clearing during April, 1932, with 649,443 tons of goods and 300,565 passengers, against 16,063 ships, 6,398,214 n.r.t., 63,352 tons of goods and 347,132 passengers during April, 1931. The total traffic at Italian ports during the month of April, 1932, included 31,457 ships arrived and cleared representing 13,378,337 n.r.t. with 2,687,473 tons of goods and 603,438 passengers, against 31,975 ships, 12,826,045 n.r.t., 2,726,489 tons of goods and 702,462 passengers. The volume of trade handled at Italian ports during April, 1932, has shown a decline of 39,016 tons in respect to April, 1931, and this fact has a considerable importance taking into consideration the fact that during the previous months of 1932 shipping has shown an average decline of over 100,000 tons of goods.

In the course of the report submitted to the Italian Parliament in regard to a Bill of the Mercantile Marine mention has been made of the situation in the Port of Naples, where, during 1931, the carrying out of a programme worked out by the Government, since 1924, has been continued with the accomplishment of the following works: (1) extension of the Granili breakwater; (2) construction of the new independent breakwater measuring 343 metres in length to shelter the entrance of the Port of Naples; (3) the enlargement and construction of quayage on the Angioino Mole and the building of two sections for large liners on the side of the Molo Beverello; (4) reorganisation of the Coast of Marinella with the construction of a bridge on the Sebeto River; (5) construction of a concrete dock on the Beverello Mole. The project in connection with the construction of new unloading and loading facilities, and new railways to increase communication between the port and the Naples Central Railway Station remains to be completed. There is also to be completed the new maritime passenger station on the Molo Angioino, including the building of the station itself, also the extension from 260 to 300 metres of the second section, built towards the dock of the Molo Beverello, as well as the construction of the head of the Molo Angioino measuring 100 metres in breadth and 412 metres in length. The project also includes a new quay in the Sacramento Dock to connect the Northern basin of the Angioino Mole with the Southern basin of the Immacolatella Vecchia Quay, and an increase of depth of water from 10 to 13 metres. Honourable Boriello, Vice-President of the Consiglio Provinciale dell Economia (Chamber of Commerce and Industry) at Naples, and representative of that port in the Italian Parliament, has raised, in the course of a speech recently delivered, the problem of organisation and system of harbours in Southern Italy, and has criticised the existence of too many small ports.

In certain Naples shipping quarters the question has been raised concerning the advantages of organising that port on the lines of Genoa, with the creation of the Consorzio Autonomo del Porto di Napoli.

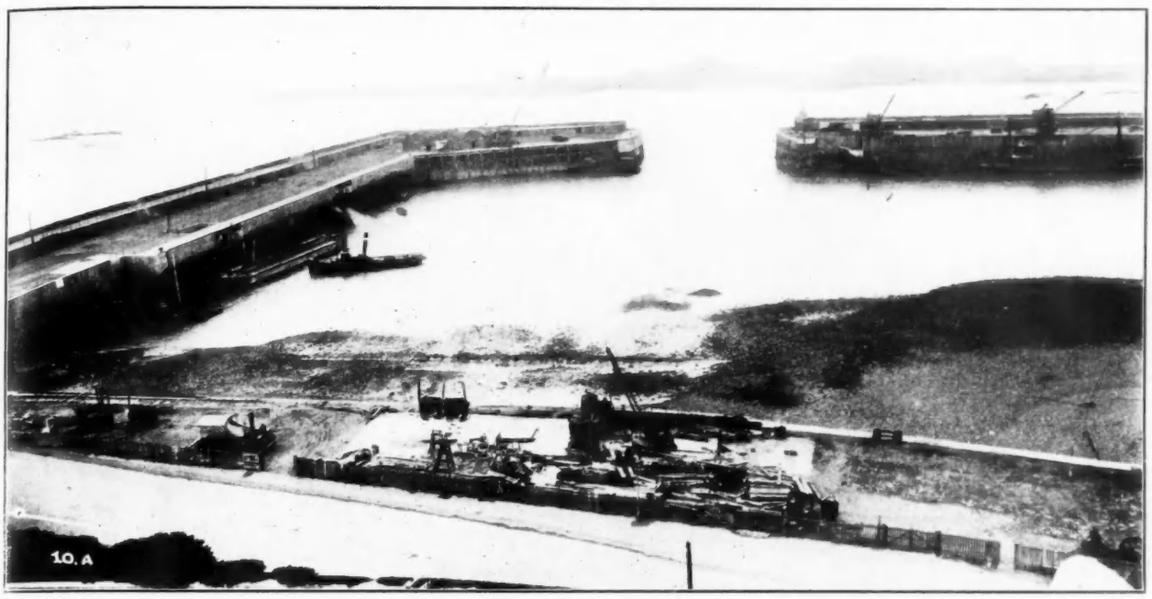
In order to facilitate the development of lumber trade at Adriatic ports the Provveditorato del Porto di Venezia has published a decree according to which the reductions of storage charges granted to foreign imported lumber on the Santa Marta Quay are now extended to Russian imported lumber unloaded on the head of the Western Mole. In connection with the development of trade at Venice it may be interesting to consider the following figures regarding the situation during the first quarter of 1932:—

Traffic	Goods Unloaded		Goods Shipped		Total	
	1932 Tons	1931 Tons	1932 Tons	1931 Tons	1932 Tons	1931 Tons
Sea ...	494,199	514,137	102,118	137,695	596,317	651,832
Rail ...	63,799	74,408	292,276	373,451	356,075	447,859
Lagoon ...	38,965	28,760	67,140	51,111	106,105	79,871
River ...	149,713	124,043	134,131	117,344	283,844	241,387

The depression particularly refers to railway and maritime trade while the lagoon and river traffic have shown an increase.

Harbour Improvements at Jersey

Increased and Better Accommodation at St. Helier



General View of the Victoria Harbour and New Jetties at Low Water.

ST. HELIER'S HARBOUR consists of an inner and an outer harbour, the latter completely enclosing the former, with the entrance facing west. The entrance is, however, protected by a breakwater running north-west to south-east from Elizabeth Castle, which breaks the swell rolling in during a westerly gale. The harbour is artificial and is formed of granite walls filled in with rubble.

In 1788 the harbour consisted of two quays protected from the south-east by a pier forming what is now known as the English and French harbour. In 1790 the construction of a North Pier completed the old, or inner harbour.

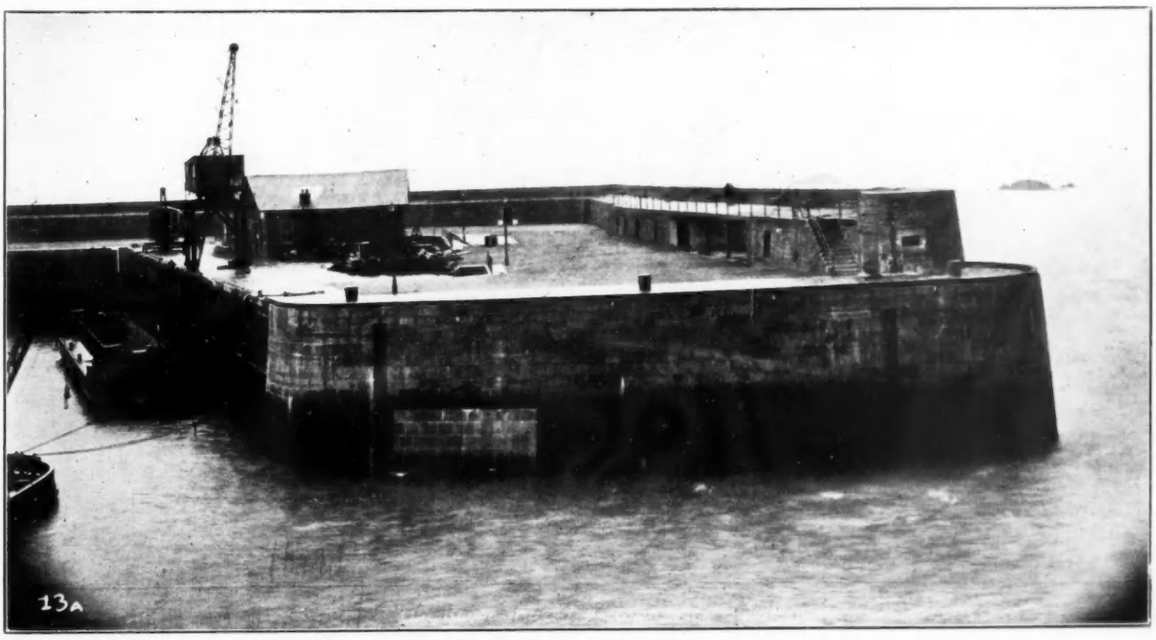
Between 1841-1846 an extension was made to the harbour to the south, when the Victoria Harbour was formed, and in 1847-1853 this was further extended by the construction of the Albert Pier, forming the outer harbour as it is to-day.

Further improvements were made between 1872 and 1876, when work was started on two outer breakwaters, one from Elizabeth Castle on the west and the other extending from Fort Regent to the south. These works were abandoned in 1876, after the destruction of the incompleted breakwater to the south, but ten years later the western breakwater at Elizabeth Castle was completed by the addition of a further 500-ft. to the south.

Between 1887 and 1893, a new berth was built at the Victoria Pier Head, and the berth dredged to a depth of 10-ft. below datum, the North Pier was reconstructed to give a greater width of quay; this was followed by the dredging of the two outer berths on the Albert Pier, to give a depth of 10-ft. below datum, and at the same time the north side of the entrance was deepened to give a like depth and the Albert Pier Head reconstructed, the foundations being taken down to rock.

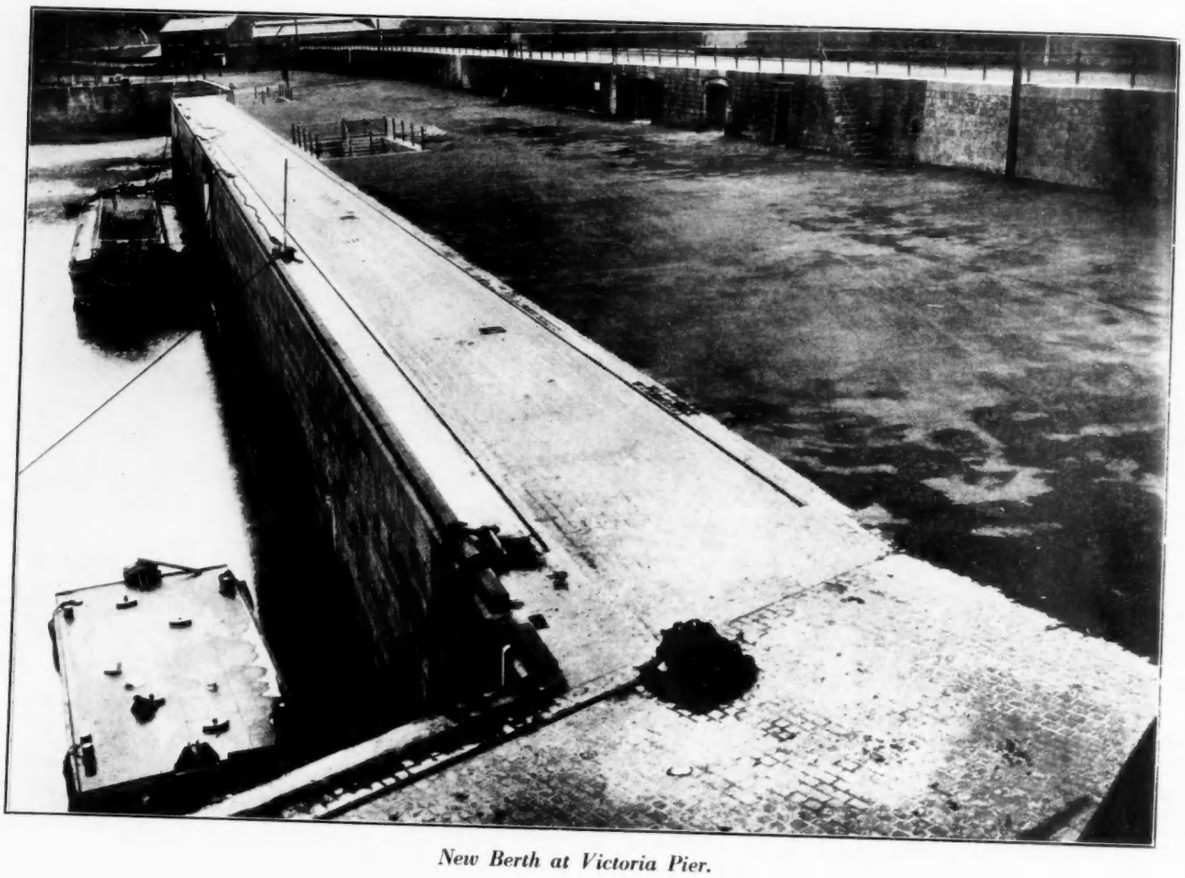
In 1924, due to the great increase in passenger traffic, which had grown to over 200,000 persons travelling to and from the Island per annum, and to the better channel service provided by the Southern and Great Western Railways, further improvements became necessary.

These improvements, consisting of the construction of new berths at the outer end of the Albert Pier and the Victoria Pier, the reconstruction of the Victoria Pier Head, and removal of old causeway obstructing the entrance at low water, and the dredging of the Victoria Harbour, entrance and approach



The Reconstructed Victoria Pier Head.

St. Helier's Harbour, Jersey



New Berth at Victoria Pier.

New Berth at Albert Pier.

Harbour Improvements at Jersey—continued

channel, to a depth of 10-ft. below datum, have been completed. At the same time the remaining portion of the outer harbour was cleared of silt, and dredged up to the 30-ton crane, to the depth of 8-ft. 6-in. below datum.

These improvements were carried out to the design of Messrs. Coode, Wilson, Mitchell and Vaughan-Lee, Consulting Engineers, by Sir Lindsay Parkinson and Co., Ltd., Contractors.

The new berth on the Albert Pier is 245-ft. long, and contains a two-stage passenger landing, and boat-steps are provided between the end of the berth and Albert Pier Head.

On the Victoria Pier, the new berth is 460-ft. long with a quay width from coping to parapet of 73-ft., and two double stage passenger landings are provided. The whole of this berth has been very carefully levelled off, at the depth of 10-ft. below datum, so that vessels may safely take the bottom in the berth.

Throughout the whole of the new works, the foundations have been taken down to solid rock, and a great deal of the dredging work necessitated the breaking up and removal of rock, of which some 33,000 yards were dredged, and taken to sea.

The plan of the harbours (see Supplement), and the four accompanying photographs, indicate the extent and nature of these improvements.

The berths in the outer harbour are equipped generally with 3 and 5-ton electric cranes of the gantry type, and there is one 30-ton electric crane.

The London and Channel Islands Co. run two weekly cargo steamers, and both the Southern and Great Western Railways run a regular service of cargo steamers. The net tonnage passing through St. Helier's harbours in 1930 amounted to 592,960 tons. The chief items of export are potatoes and tomatoes, of which 53,475 tons and 19,852 tons respectively were exported in 1930.

For general information regarding the Port, Signals, Pilotage, etc., reference should be made to the Channel Pilot, Part 2.

North-East Coast Notes.

Features of Tyne Trade.

THE bunkering trade of the Tyne still remains the best feature in the statistics issued by the Tyne Improvement Commission. In the first three months of this year 1,545 vessels took 529,615 tons of bunkers compared with 1,592 vessels and 444,707 tons in the corresponding period of last year, a decrease of 47 vessels but an increase of 84,908 tons of coal. At the Commissioners' docks and staiths the coal and coke shipped was 842,419 tons compared with 698,918 tons in the first quarter of last year, an increase of 143,501 tons, equal to 20.53 per cent. The aggregate coal and coke loadings in the river tell quite a different tale, however. In the first three months the shipments were 3,375,297 tons, compared with 3,792,082 tons in the corresponding period of last year, a decrease of 416,785 tons.

Alderman T. Sykes, South Shields, in presenting the report of the Harbour and Ferries Committee said that every available berth in the river was occupied by idle ships. It was an appalling state of affairs. There were that day 162 vessels of 331,000 net register tons laid up. It was the highest number ever laid up, in the river—a most unfortunate state of affairs.

Ship-to-Shore Telephone Success.

At the same meeting it was reported that the ship-to-shore telephone facilities provided by the Commissioners at the Whitehill Point and Albert Edward Dock coaling staiths were being increasingly appreciated. A light portable telephone instrument has now been in use for twelve months, and the general manager (Mr. Richard Aughton) reported that since its introduction it had been used by 325 vessels which had made 4,383 local calls, and 489 trunk calls, a total of 4,872 or an average of 15 calls per vessel. The revenue had been £71 as against telephone charges of £106, representing a net cost to the Commissioners of £35, on the year's working. An original suggestion was that a charge of 2s. 6d. per day be made to shipowners for the use of a ship-to-shore telephone, but at the request of the North of England Shipowners' Association it was decided that a charge of 2s. per day be made, with a maximum charge of £1 per vessel. In view of the increasing use which was being made of the telephone it was agreed that the present arrangement be continued for a further period of twelve months.

Progress of New Staiths.

The Commissioners' engineer submitted a progress report on the new river staith at the west end of the Northumberland Dock. In the course of this report it is stated that about 90 per cent. of that portion of the old Cramlington River Staith to be demolished by the Hartley Main Collieries, Ltd., has now been removed and the boundary fence between the old Northumberland Shipyard and the river staith taken down and re-erected. Of the 267 timber piles to be driven, 92 have been driven to the designed level and braced together; 199 of the 565 steel sheet piles have also been satisfactorily driven, 75 per cent. of the steel foundation cylinders have been constructed and delivered, and in connection with the eight cylinders in this work, two have been completely assembled and sunk to designed level. Of the 160 concrete piles, 124 have been moulded and 53 driven to the designed level. The concrete foundations for the conveyors from the wagon discharging hoppers to the river are 90 per cent. completed and a portion of the conveyor gallery has been erected and sheeted. The machinery in the electric sub-station is being delivered and fixed. The Tynemouth Corporation have laid the electric supply cables and telephone cables into the building. The construction of the necessary electrical machinery by the British Thompson Houston Co., and the coal shipping plant and band conveyors by Messrs. F. Turnbull and Co., of Heaton is proceeding satisfactorily. Commencement has been made with the construction of the new road to the staith.

Wear's Expanding Coal Trade.

It is gratifying to be able to relate that the improvement in the Wear coal trade is being well maintained. Shipments of coal and coke for the three months of the year total 1,309,170 tons or 74,985 tons more than in the corresponding period of last year. Last March the increase amounted to 19,676 tons compared with the same month in 1931. Other exports during the three months totalled 11,383 tons against 17,218 tons in the first three months of last year. These exports comprise iron, steel, pitch, petroleum and sundries. Imports totalled 53,649 tons against 64,325 tons.

Blyth Harbour Commission's Jubilee.

The Chairman of the Blyth Harbour Commission (Mr. Ridley Warham) at the April meeting of the Board referred to the fact that on the 18th of June, the Harbour Commission would complete a period of 50 years since its formation. To mark the occasion he suggested that the whole of the employees might be entertained to a luncheon on that date, and some souvenir should be provided and presented to each employee and members of their families. This was unanimously agreed to, and the general manager was instructed to make the arrangements accordingly.

The chairman submitted particulars of the coal exports for March as well as for the three months ended March 31st with comparative figures for 1931 and 1913. The figures for this year showed a substantial increase over the corresponding periods in the years referred to, viz.:—

March				Tons
1932	...	...	...	446,356
1931	...	...	...	391,260
1913	...	...	...	339,266

For the three months ended 31st March:—

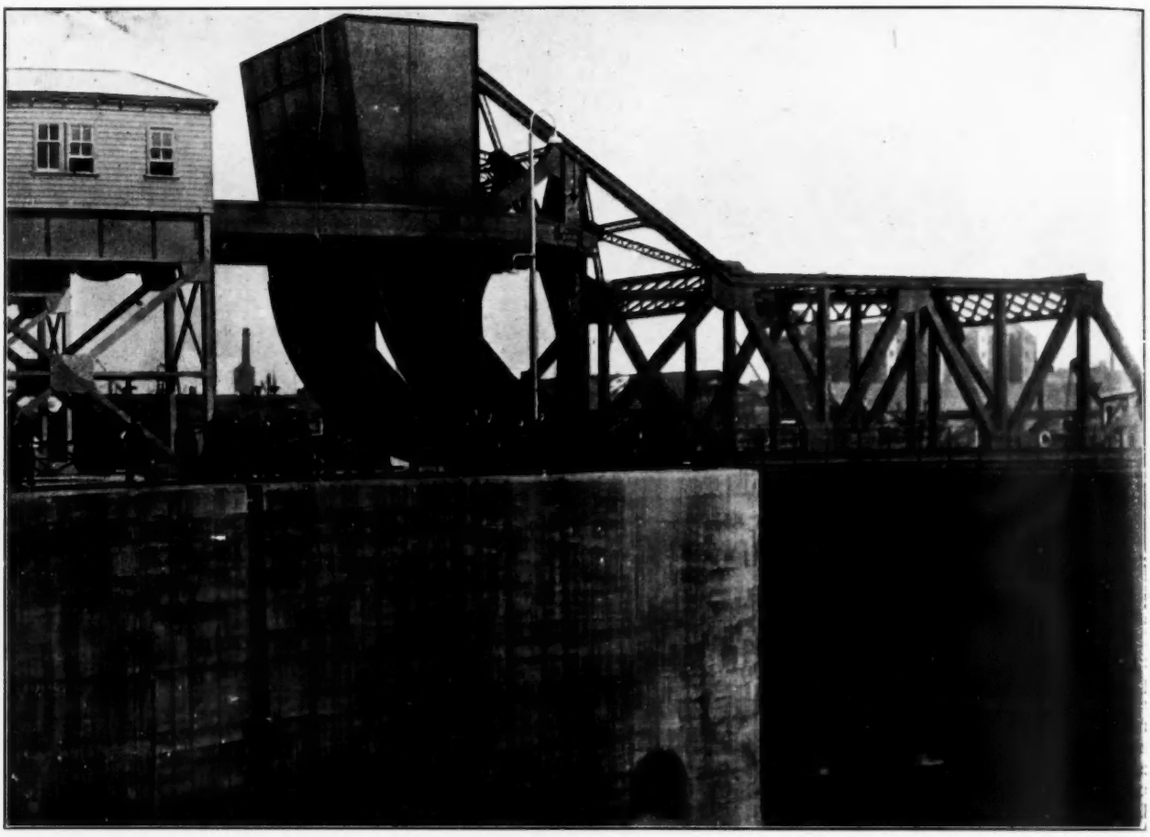
				Tons
1932	...	...	...	1,308,603
1931	...	...	...	1,136,893
1913	...	...	...	1,103,740

These latter figures indicate an increase of 15 per cent. over 1931 and 19 per cent. over 1913.

Tees Trade on the Up Grade.

The shipments of iron and steel from the Tees during April created a record for the year, and continue the steady advance recorded each month since January when 30,293 tons were shipped. In March 42,579 tons were shipped, and last month the tonnage was 45,818 tons. The greater part of the advance in April over the March figures is due to better export shipments of pig-iron, which advanced from 2,625 tons to 5,023 tons last month. Coastwise and overseas shipments in April reached 15,927 tons, the highest for any month this year. In this figure is 6,297 tons despatched to Scotland as a result of the renewed endeavours by the local ironmasters to meet the competition of the Midlands and Indian iron in the Glasgow area. Denmark was the largest purchaser of pig iron taking 2,514 tons and Italy 800 tons.

Notes from the North



Opening of new Trafalgar Dock, Liverpool, showing the new Bascule Bridge (weight 680 tons).

Dock Works that have Cost £1,000,000.

BY the admission of water into the new 7-acre Trafalgar Dock and associated graving dock, and the opening of the new rolling bascule traffic bridge over the passage between the Salisbury and the Trafalgar Docks, Liverpool, was completed a reconstruction scheme by which it is possible for cross-channel and coasting steamers using the port, to enter at any state of the tide by using the Gladstone entrance and then passing into the heart of the system as far as the Prince's Dock. The work cost about £1,000,000.

The Lady Mayoress of Liverpool touched an electric switch on the roadway between the Salisbury Dock and the new dock, and lowered, in little more than 30 seconds, the 680-ton new bascule bridge to span the passage between the docks. Next the Lady Mayoress moved to the head of the new Trafalgar Dock, and by pulling a lever opened the sluices admitting the water. The new Trafalgar Dock will hold 260,000 tons.

Speaking at the luncheon served in the Dock Board offices to commemorate the proceedings, Mr. Richard D. Holt, chairman of the Dock Board, said the improvement scheme was really the result of the sale by the Board to the Liverpool Corporation of the old Clarence Dock, now converted into a hugh electricity supply station. Electric power was of immense importance to the trade of the port, and more and more the working of the docks was changing over from the old hydraulic system instituted over 40 years ago, to the utilisation of electrically-operated apparatus and appliances which proved in practice, cheaper and more efficient. Referring to some of the docks involved in the scheme, Mr. Holt said the Prince's Dock, in which the Irish steamers now berthed, was originally constructed in 1821; the old Clarence Dock followed in 1836 and its situation, quite a long way from the Prince's Dock nearly a hundred years ago was chosen, it should be noted, in order that the smoke from the steamers then entering the port should not set on fire the sails of the sailing ships in Prince's Dock. After that, the Trafalgar and Waterloo Docks were built in between the Clarence and the Prince's when people found by experience that the steamers did not usually set on fire the sails of the sailing ships.

The new arrangement and re-organisation of the central docks with the widening and deepening of various passages made it possible now for all the vessels utilising those docks to enter the Gladstone Dock at the mouth of the Mersey at any state of the tide and pass right through inside the other docks until they arrived at Prince's Dock. That was a very considerable advantage to the smaller class of shipping frequenting the port. It was not the mere difference between low water and high water. It was the difference between just missing entrance at high water and having to wait outside for the next high water. Those vessels might easily save in certain circumstances, something like 10 hours in getting to their berths by the ability to pass through from the Gladstone to the Prince's Dock. Already some of the smaller craft had been able to enter the dock system in that way, and now that advantage was made available to the medium-sized ships like those trading to Newry, Dundalk and other Irish ports, and to all it would mean a material saving in cost. The Board recognised it was very important that they should cultivate the cross-Channel trade, because it was by means of all that coasting trade, they made Liverpool a great transhipment port. It was not enough to provide facilities for the big vessels, it was necessary to provide for the little ships too, because they were needed to bring cargo to be exported in the big ships, and to distribute the cargo which was brought into the port by those ships. In catering for the little ships the Board were also catering for the big vessels, and it was that aim to which their energies were directed.

Liverpool was essentially a warehouse port, most of the cargo which came into Liverpool went first into warehouse, and then it changed hands and was distributed by rail, motor transport, cross-Channel or coasting vessels.

Morecambe Pier Sold for £4,000.

Because they considered it to be unsafe, the consulting engineers felt themselves unable to grant a certificate of safety in respect of the Morecambe West End Pier, which has now been sold by auction for £4,000. At the sale the auctioneer announced that the Morecambe Corporation had asked for a certificate of safety of the pier and the directors consulted their engineer (Mr. Dryden) who was unable to give the necessary certificate, as he considered the pier unsafe, and that a sum of at least £1,000 would have to be spent immediately, before a certificate could be issued.

A further £3,000 expenditure would also have to be spent on the pier before it could be said to be in a proper state, and as the debenture holders were unwilling to subscribe any further monies, the directors had no alternative except to appoint a receiver, by whose instructions the sale was held.

Notes from the North—continued

Improvements to the Eastham Channel, Bromborough.

In order to effect improvements to the Eastham Channel, Messrs. Lever Bros., Ltd., recently carried out blasting off the entrance to Bromborough Dock, extending some 100 yards northwards of a line joining the face of the Bullnose on the south side of the entrance to El Red Buoy.

Presentation.

Mr. C. H. Mossman, on his retirement from the service of the Mersey Docks and Harbour Board after a lengthy period as machinery inspector on the North Circuit was presented by his colleagues with a gold dress watch. Mr. David Williams succeeds Mr. Mossman as machinery inspector.

New Steamer for Manchester.

Manchester Corporation Rivers Committee has invited tenders for the construction of a twin-screw steamship for the conveyance and discharge of sewage sludge. The steamship is required to be constructed by British labour from British material, and is to be built in the British Isles. Form of tender together with general conditions, specification and drawings has to be delivered by June 18th.

Woodside Cattle Wharf.

Improvements of the Woodside Cattle Wharf have been authorised by the Mersey Docks and Harbour Board. On the recommendation of the Traffic Committee it has been decided that, following upon certain reports with regard to the condition of the cattle loading staith at the Woodside portion of the Mersey cattle wharf, the staith should be reconstructed with concrete walls, deck, etc., at an estimated cost of £985.

Bromborough Port.

This new enterprise of Messrs. Lever Brothers, Limited, continues to make steady progress and is fast coming to the fore as one of the most efficient and expeditious docks in the country. Something in the nature of a record was achieved in this dock recently in the discharge of bulk whale oil cargo ex m.v. " Thorsholm," N.R.T. 4,100. This vessel, on charter to the Southern Whaling and Sealing Co., Ltd., entered Bromborough Dock, 3 a.m. on a Monday. Pumping commenced 5.45 a.m. on that day and by 3.55 a.m. on a Wednesday, 9,200 tons of oil had been discharged into shore tanks, making the average rate of discharge 200 tons per hour. Simultaneously other cargo was discharged to coastwise vessels and railway wagons.

Future of the Port of Fleetwood.

Mr. M. B. J. Wedum, at the annual dinner of the Fleetwood Fish Merchants' Association, Ltd., said that some fears had been voiced that the capital expenditure involved in the contemplated dock extensions at Fleetwood might throw upon the fishing industry a very heavy burden. If he thought this were so, he would be with those who expressed these fears. Such facilities as the dock developments contemplated, however, were not a matter of one or two years. Probably it would take ten years before the new dock became an accomplished fact, and by that time they would find an urgent need for it. The annual report of the Association stated that following prolonged representations by the Association to the L.M.S. Railway Company, the transit rates for consignments of fish to many distant towns had been slightly reduced, placing Fleetwood merchants and curers on a better competitive footing with East Coast ports and Milford Haven.

Liverpool Not a Dear Port.

Mr. J. A. Eckes, chairman of the Liverpool Chamber of Commerce, speaking at the annual meeting, declared that Liverpool as a port suffered unfortunate prejudice, as their dues were on a higher level than most other ports. He was not going to say that it was a dear port, because such a statement was misleading and open to misinterpretation. Their charges might be higher, but if their charges were related to the services included in the item of cost, then it was established that they were actually cheaper than most of the ports which enjoyed the reputation of being cheaper than Liverpool. But so far as the interpretation of the new Import Duties Act was concerned they were at an apparent disadvantage, and they were insisting to the utmost of their power that the position should be righted by an amending act if, as appeared probable, an amended ruling of the existing act to make the c.i.f. value only subject to Customs collection, was not possible. An alternative was an arrangement as a temporary solution, in regard to the inclusion of dues which would place the ports on the same basis. Other questions remained to be solved. In his own view, in the course of practical working, duties on certain merchandise would have to be transferred from an " ad valorem " basis to a weight or other basis. Experience would, no doubt, gradually achieve that object.

Ribble Traffic " Up."

According to the report of the General Traffic Manager of the Ribble Dock undertaking, the number of vessels in the traffic returns for the month of March, is 130, as compared with 119 last year, the net registered tonnage being 44,897, as compared with 40,787. Imports were lower and exports higher. The total imports and exports were 65,551 tons, as compared with 68,075 tons. During March of this year 2,037 animals were landed, as compared with 3,901 in March, 1931.

New Plant for Grimsby.

Messrs. Henry Simon, Ltd., engineers, of Cheadle Heath, Stockport, have received from the London and North-Eastern Railway Company the contract for machinery, cranes and belts for the Royal Dock, Grimsby, in connection with the new coaling scheme, which provides for four berths, each capable of dealing with coal at the rate of 400 tons an hour, and two smaller berths.

Mersey Cross-River Ferries.

Wallasey Ferries Committee has had under consideration the question of whether it is advisable on financial grounds to close the Egremont and New Brighton Ferries during the winter months. Those in favour of discontinuing the northern service between October and April urge that the running of the steamers during the winter months involves a serious loss as they are so little used, and that as there is now such an admirable service of motor 'buses no hardship or inconvenience to the travelling public would be entailed. The argument of those in favour of an all-the-year-round service is that it should be maintained even at a loss, and, furthermore, that there is a statutory obligation to maintain it. The legal position is being investigated.

New Warrington Bridge.

In connection with the construction of the new bridge near Manor Lock, Warrington, certain difficulties have been encountered by the contractor in regard to the foundations in the central pier. The consulting engineer has discussed the matter with the divisional engineer of the Ministry of Transport. As a result the Corporation has decided to order the following works: (a) Piling to be extended beyond contract, as necessary to give the support required in central pier and Lancashire abutment; the extra length is required on account of the soft nature of the ground; (b) additional excavation and concrete in central pier caused by the cavity, necessitating additional depth of widening of base of pier; (c) mass concrete slab behind Lancashire abutment and under embankment to utilise weight of a section of embankment to give additional security against the horizontal thrust.

Ribble Dock Undertaking.

Ribble Dock undertaking seems to have made good progress during the last twelve months. Alderman Lucas, the chairman of the Ribble Dock Committee, reporting to the Preston Town Council, said that the imports had increased by 85,538 tons, and the exports by 4,561 tons. When they considered the times they had been going through, they would all agree those figures were highly satisfactory as most ports in the country showed a decrease. A slight decrease of £1,400 in revenue was accounted for by the fact that there had been less receipts from labourage than last year, owing to the fact that merchants employing private stevedores had increased their imports, rather than those who engaged the Corporation to do the work. On the other hand expenditure had been curtailed. The result would be that the working surplus would show an increase of £6,000 from £52,000 to £58,000. If the undertaking had been a private company such as the Manchester Ship Canal, instead of Corporation property, he would have been in a position to declare a dividend. The net registered tonnage of vessels for the year was 543,445 tons, a record for the port, and the tonnage of vessels from foreign ports had increased by 229 over last year, the average now being 1,416 tons. There was an increased revenue from dues alone of £10,675, whilst the receipts from these items had increased by £22,047 in the last ten years. The petrol report last year was 200,912 tons, or 60,273,600 gallons, an increase of 56,413 tons, or nearly 17,000,000 gallons over last year. The figures had practically grown to these dimensions in 10 years. The amount paid by the Corporation in wages during the year was approximately £125,000. There were 310 permanent and 704 registered casual transport workers employed. It would be absolutely necessary to provide a bonded warehouse owing to the new duties or they would lose trade.

He hoped that the undertaking would so continue to improve that they would be able to come forward and ask for a less sum out of the rates.

Notes from the North—continued

£140,000 for Dock Equipment.

Mr. Francis D'Arcy, Chairman of Messrs. Lever Bros., Ltd., owners of Bromborough Dock, which opened about twelve months ago, speaking at the annual meeting of shareholders mentioned that during the year the company had spent £144,254 on Bromborough Dock in providing oil tanks, roads and railways, and on the completion of expenditure on the dock construction.

Personal.

Capt. L. J. Pingriff, master of the Langton Docks, has been appointed to take charge of the Gladstone Docks.

* * * *

The death has occurred at London of Mr. Robert Parry, former chief harbour master of the Mersey Dock Board. Mr. Parry was 73 years of age.

* * * *

Mersey Docks and Harbour Board has appointed Captain Thomas Atkinson, junior assistant harbour master to the position of harbour master, in succession to Captain A. P. Hurst, who is due to retire on superannuation at the end of June. It is also understood that the Board will promote Mr. J. P. Grundy, now master at the Gladstone system of docks, to be junior assistant harbour master, to fill the vacancy created by Captain Atkinson's elevation.

New Dredger for Liverpool.

Mersey Docks and Harbour Board has confirmed the placing of an order with Messrs. Cammell Laird and Co., of Birkenhead, for the construction of a twin-screw sand pump dredger at a cost of £103,000. The new vessel will have a cubic capacity of 70,000-ft., and a register of 3,500 tons, her dimensions being approximately the same as those of the board's dredgers Coronation and Burbo. A dredger such as this is the most suitable for work in the Mersey channels. Messrs. Cammell Laird and Co. were the builders of the board's large dredger "Leviathan."

Not to be a Fishing Port.

In the opinion of the Liverpool Corporation Markets Committee, the time is not opportune to proceed with the proposed scheme to make Liverpool a real fishing port by providing at the Liverpool Docks any necessary facilities to encourage the fishing industry and thereby make Liverpool one of its greatest centres.

This matter was raised in July of last year by Councillor T. Dunford and the Council then decided to call upon the Markets Committee to report on the proposal that the Mersey Docks and Harbour Board should be approached with the request that they co-operate with the Corporation to make Liverpool a great fishing port.

Here is the Market Committee's report, submitted to the meeting of the City Council on 4th May: "Extensive enquiries have been made, and the Mersey Docks and Harbour Board are in possession of all the necessary data in connection with the matter. In the opinion of the representatives of the Dock Board with which the Markets Committee agree, the time is not opportune to proceed further with this proposed scheme."

Mersey Pilotage Regulations.

Mersey Docks and Harbour Board has adopted a revised code of bye-laws relating to pilots. The new bye-laws fall into three divisions. The first alteration relates to the qualifications for the granting of certificates to masters and mates and the renewal of them. That alteration, stated Mr. J. H. Tilman, chairman of the committee at a recent meeting of the Board, had been the object of very careful consideration by the committee and there had been conferences and correspondence with the Shipowners' Association and the steamship owners, and the result was the agreement embodied in the new bye-laws. Another matter was one rather of a domestic character. Certain alterations had been made as to the qualifications for pilots to become masters, and other things which they thought dealt with the efficiency of the service. There was another item with regard to the delegation by the Board of powers to the committee in matters of discipline. That had been embodied in the new bye-laws.

Bascule Bridges at Birkenhead.

In all, the Birkenhead Docks will have five bridges of the bascule type; the one at Duke Street, which has been working for some months, three along Tower Road on the way to Seacombe, and the fifth over the Egerton Dock passage. Rolling bascule bridges are gradually replacing the old swing type on the dock estate. Work is now proceeding on the roadway between Birkenhead and Seacombe where two bridges are in the course of construction. One of the advantages of the bascule bridge is that it can be erected without greatly interfering with the traffic across the docks.

Liverpool Dock Improvement.

The Mersey Docks and Harbour Board has confirmed a recommendation of the Works Committee authorising the engineer to construct a concrete dolphin at the south end of the timber jetty, each side of the Prince's Dock entrance, and to extend the entrance wall to meet the dolphin, at a total estimated cost of £3,000. This improvement is rendered necessary by the increased size of the coasting vessels using the berths in the Prince's Dock.

Manchester Ship Canal Traffic "Up."

Manchester Ship Canal Company in its traffic return for the month of April states that traffic receipts from the main waterway were £94,690, representing an increase of £11,924 as compared with March, and one of £3,751 as compared with those for the corresponding month of last year. This is a very satisfactory result and it suggests an abnormal increase in exports. Manchester's imports of raw cotton continue to expand, the total so far this season being 714,277 bales, against 564,630 bales in the corresponding period of last season. Total receipts for the first four months of this year amount to £367,908, which is only £2,725 less than in the same months of 1931.

Model of Sydney Bridge.

There is being exhibited in one of the Liverpool shopping emporia a scale model, 1/20th inch to a foot, of the famous Sydney Harbour Bridge, built by a ship's steward. A scenic background makes it a most realistic scene, while in a reproduction of a section of the great harbour liners, ferry boats, and other vessels sail along. The model has a total length of 16-ft., and the sweeping span measures 7-ft. A hundred or so minute electric globes light the bridge, vehicles, river craft, and surrounding buildings to depict the scene as it is at night. The whole has been fashioned from sheet brass, and it represents many hours of tedious toil. It has cost £1,000 to complete and has been insured for £4,000. It weighs 7 cwts., as compared with the 50,000 tons of the Sydney Bridge.

Mersey Tunnel Works.

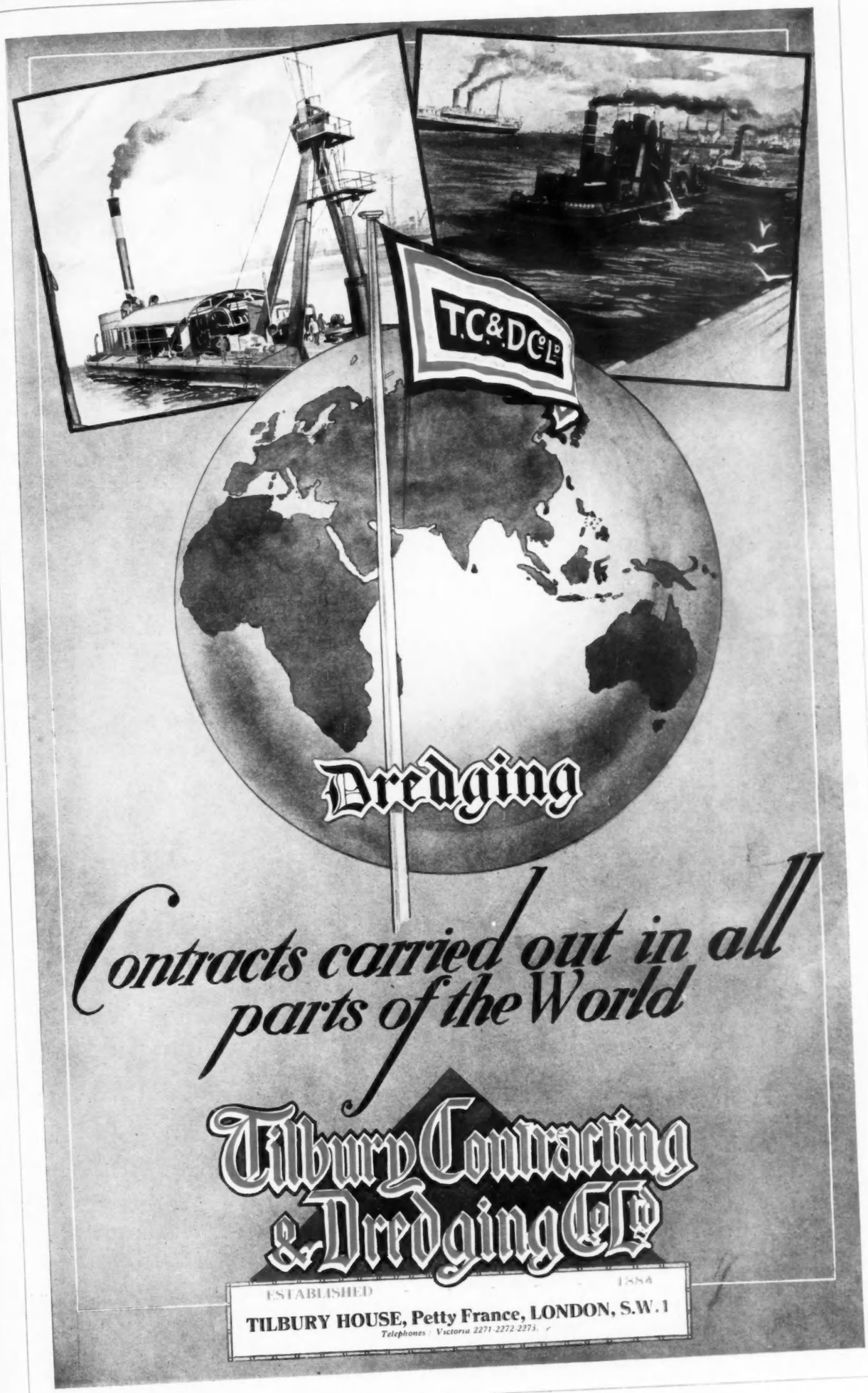
The engineers to the Mersey Tunnel Joint Committee report that the tunnel work has been completed under Contract No. 2, which comprised the construction of the 44-ft. diameter iron-lined tunnel between the shafts at George's Dock, Liverpool, and Morpeth Branch Dock, Birkenhead. The contract amount was £1,413,601 7s. 3d. and the estimated value of the work accomplished to date was £1,470,000. Under Contract No. 3, comprising the construction of the full-size tunnels on the Birkenhead side, the tunnel work also was complete. The contract amount was £749,075 3s. 1d., and the estimated value of the work accomplished to date was £773,000. Of the concrete lining, 92 per cent. of the total 18,000 square yards in the contract had been done. The concrete roadway was complete, and the footpath construction was continued, 90 per cent. of the total having been done. Fixing of lighting fittings had been started, and 122 or 23 per cent. of the total of 526 fittings had been set to date.

Of the contract for the full-size tunnels on the Liverpool side, 97 per cent. of the contract amount of £670,390 had been accomplished. Seventy men were engaged on Contract No. 4a, comprising the construction of the reinforced concrete roadway, and other interior concrete in the circular cast-iron lined tunnel under the river. The contract amount was £384,884 0s. 9d. and the estimated value of the work accomplished to date was £304,000 or 79 per cent. of the contract amount. The concrete filling, concrete roadway, the footpath construction were complete. A summary of contracts Nos. 2, 3, 4 and 4a showed that of the total of £3,217,951, the value accomplished to date was £3,195,000, or 99.4 per cent., 340 men being employed.

Department of Overseas Trade: Change of Address

The City office of the Department of Overseas Trade, previously situated at 73, Basinghall Street, E.C.2, was removed on May 20th to new accommodation on the second floor at 9-12, Basinghall Street, E.C.2. (Telephone: Metropolitan 4713).

The office deals primarily with the dissemination of information relating to shipping and transport matters, but commercial information of a general character may also be obtained there. United Kingdom firms requiring detailed or technical information relating to matters other than shipping and transport are, however, advised to address their enquiries to the head office of the Department at 35, Old Queen Street, Westminster, S.W.1. Mr. A. G. Chuter, M.B.E., is the officer-in-charge of the City office.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Dock and Harbour Walls and their Foundations

By H. F. CORNICK, M.C., A.M.Inst.C.E.

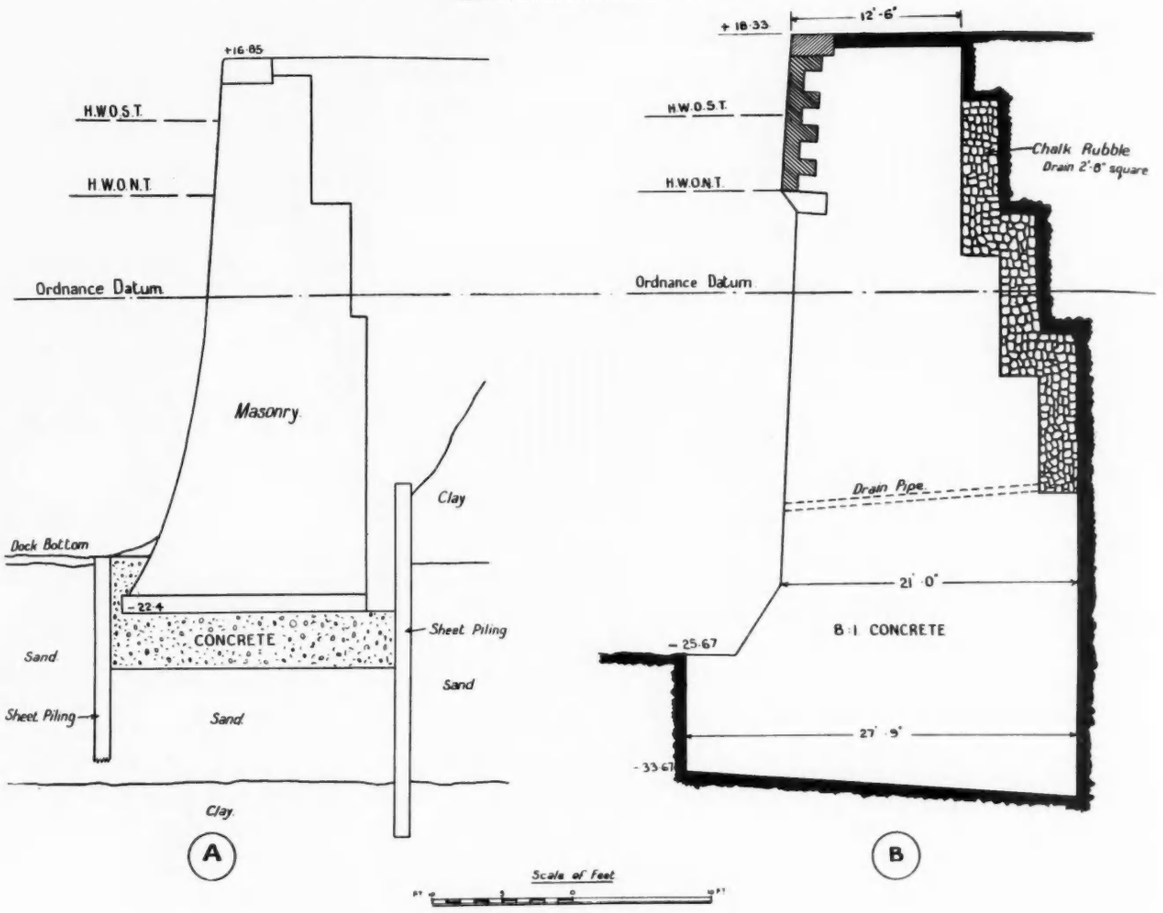


Fig. 1.

MUCH of the difficulty experienced by engineers in designing gravity quay walls for docks and harbours can be ascribed to the diverse behaviour of earths under various conditions of saturation and pressure and at different depths, to the paucity of information on this subject and to the fact that not often are conditions to be found twice alike in all respects, even in the same port, however small.

As is well known, the design of dock walls is a very complex matter involving a number of considerations, the exact determination of which is fraught with much difficulty. It is easy to see, therefore, that every item of practical information obtained from actual works is of great value. These aspects of the design of dock walls have been dealt with by the writer in previous articles in this journal.

The writer in the course of his professional work has been much struck by the meagre amount of information that is usually given in the description of such structures, even in technical papers or text books devoted to the subject. The mere publication of the cross section of walls constructed in various ports, without details and description of strata upon which they are founded, the nature of the backing, together with accounts of the geological and other peculiarities of the site are generally of but very limited real use to engineers and designers who are seeking practical data.

If in addition to the customary information furnished in technical papers and articles relating to dock walls more data were supplied in regard to the weight per cubic foot, natural slope, degree of saturation of the various backing materials used; the safe bearing pressure of the material upon which the walls are founded; the nature and weight of the super load provided for; a little information as to the calculations, and lastly, the practical reasons for the adopted form, type and size of wall—gravity, monolith or caisson, etc.; seekers after knowledge would have some firmer basis upon which to commence their own investigations when designing walls for similar purposes.

The writer therefore has been at some pains to collect a few examples of dock and wharf walls where certain details of the foundations and so on have been available, and to give the information gleaned in the following short article.

Failures of dock walls which have occurred, providing what may be termed negative information, are sources of very valuable data and could be made of extreme value if carefully investigated and scientifically explained.

Another point which is worthy of mention is the question of Factor of Safety, in regard to which it is safe to say that the only time when there is definite information as to its value —or lack of value—is when a failure occurs. Most structural works, whether in steel, concrete, reinforced concrete, timber or brick, are designed with a definite Factor of Safety, which is usually easily determined, based upon the strength of the materials with which they are constructed and having regard to all external forces. In dock walls, however, the question of Factor of Safety is a much more difficult problem and one which does not appear to be given the attention and close investigation which it should be accorded.

The writer at one time of his professional career was intimately connected with the design and construction of steel bridgework for the Crown Colonies, Indian State Railways, and the South American States—a class of structure in which the Factor of Safety had a very definite and significant importance. When devoting his time at a later period to the investigation and design of dock and wharf walls, the seeming indifference of engineers to this important factor was at once apparent; at any rate it was seldom mentioned, and never with any attempt at assigning values to it.

In the case of dock walls, unlike most other structures, the Factor of Safety is unknown until the end of the calculations, and even then it is without doubt very difficult to denote it in actual figures. It is obvious, too, that as a dock wall may fail in many different ways, the Factor of Safety may well be resolved into separate components. The chief of them and probably the only ones which need be considered being:—

(a) Overturning;
(b) Sliding on base;
(c) Pressure on foundations.

Dock and Harbour Walls and their Foundations

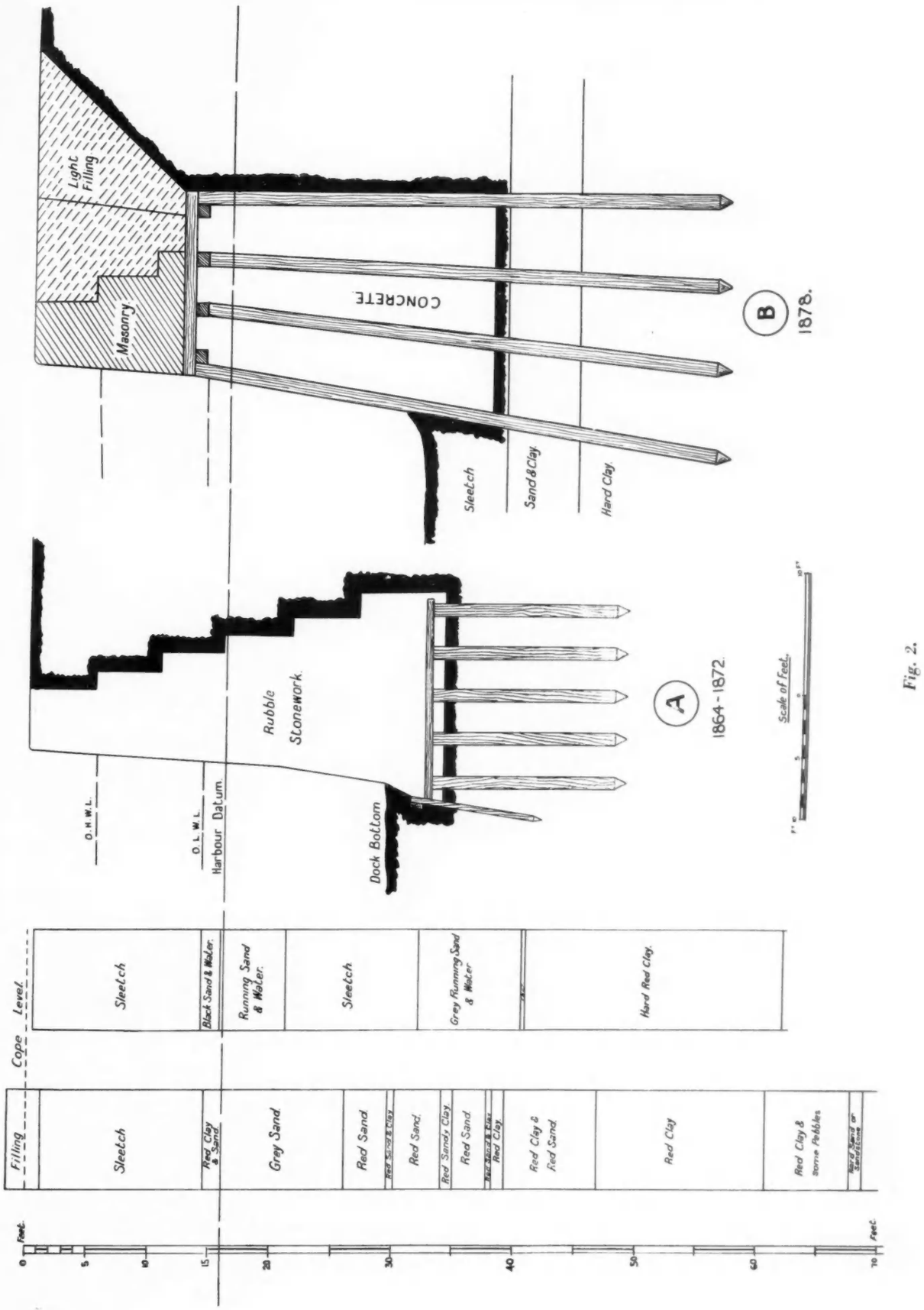


Fig. 2.

Dock and Harbour Walls and their Foundations

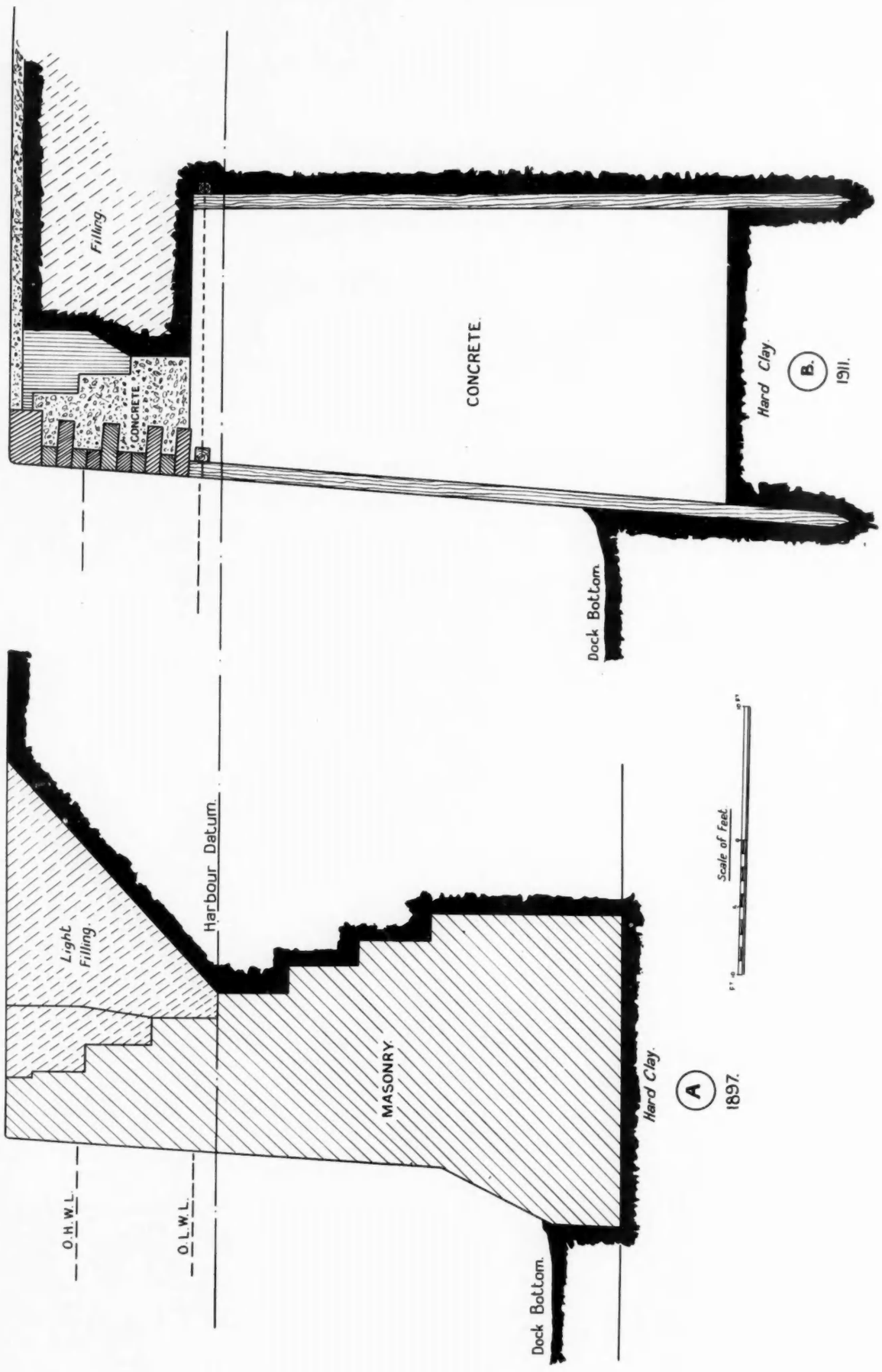


Fig. 3.

Dock and Harbour Walls—continued

Mr. W. Y. Chamberlain, in an article on "The Stability of Quay Walls" in *The Dock and Harbour Authority* of March, 1923, deals with the Factor of Safety in dock walls, and from a series of investigations of actual failures of dock walls at Belfast, endeavours to arrive at "critical sections," i.e., those which are theoretically in a state of unstable equilibrium, and from these to deduce Factors of Safety. The question is an interesting one and worthy of more attention.

Gravity Walls

Where a solid foundation is met with at a reasonable depth below the surface of the ground, gravity type dock and wharf walls are still largely used, especially where quay loads are likely to be heavy and the ships berthed are of large size. There is a limit, however, at which this type of wall would no longer be economical, and the gravity type might then give place to a wall founded upon or composed entirely of monoliths. Monolith construction, in some situations and under certain conditions, might again be discarded in favour of the caisson type of wall, or to a piled type of reinforced concrete wall, a type which has lately been rapidly coming into prominence and favour.

Writing in the August, 1924, issue of *The Dock and Harbour Authority*, Mr. J. L. Calvard, A.M.Inst.C.E., describes the docks at Kingston-upon-Hull, and in the course of his remarks mentions that the Humber estuary has geologically undergone many changes since pre-historic times. Lands now reclaimed were either totally submerged or tidal, and large swamps existed with numerous islets formed by the higher portions of gravel mounds and deposits of the glacial age. These physical and geological conditions had an important influence upon the nature and form of dock developments, and the form and method of dock construction in Kingston-upon-Hull has to a large extent been governed by the nature of the land available and the strata underlying it. According to Mr. Calvard, "the surface stratum is either made ground or alluvial deposit of varying depths. Underlying this deposit is a bed of clay, the thickness of which varies considerably in different localities within even very small areas; under this stratum, peat, forest remains, sand, running sand and gravel occur, all or partly in varying thicknesses and areas. Below these there is a bed of clay of considerable thickness overlying the chalk, the surface of which is far below any foundation or piling. The subterranean streams and springs occurring below the upper clay have been a source of great difficulty and expense in the construction of three of the larger docks."

In Fig. No. 1 are shown the profiles of two dock walls, one constructed in 1869 at the Albert Dock, and the other in 1914 at the King George Dock.

In the first case the bottom of the masonry wall rests upon a concrete base upon a strata of sand between the upper clay and the lower clay. This sand has been retained by sheet piling at the toe and rear of the wall, and has proved satisfactory.

The King George Dock—required to accommodate deeper draft vessels—has walls which are taken down to the lower clay. The back of this wall at intervals along its length is packed with block chalk, forming drains which together with the drain pipes through the wall ensures that there is no unbalanced hydraulic pressure on the back of the wall, due to surface water and the subterranean streams and springs which are mentioned as being present in the strata immediately above the lower clay.

The writer is unfortunately without any information as to the nature of the material used for back filling to the walls. Presumably it would be selected material obtained from the excavations.

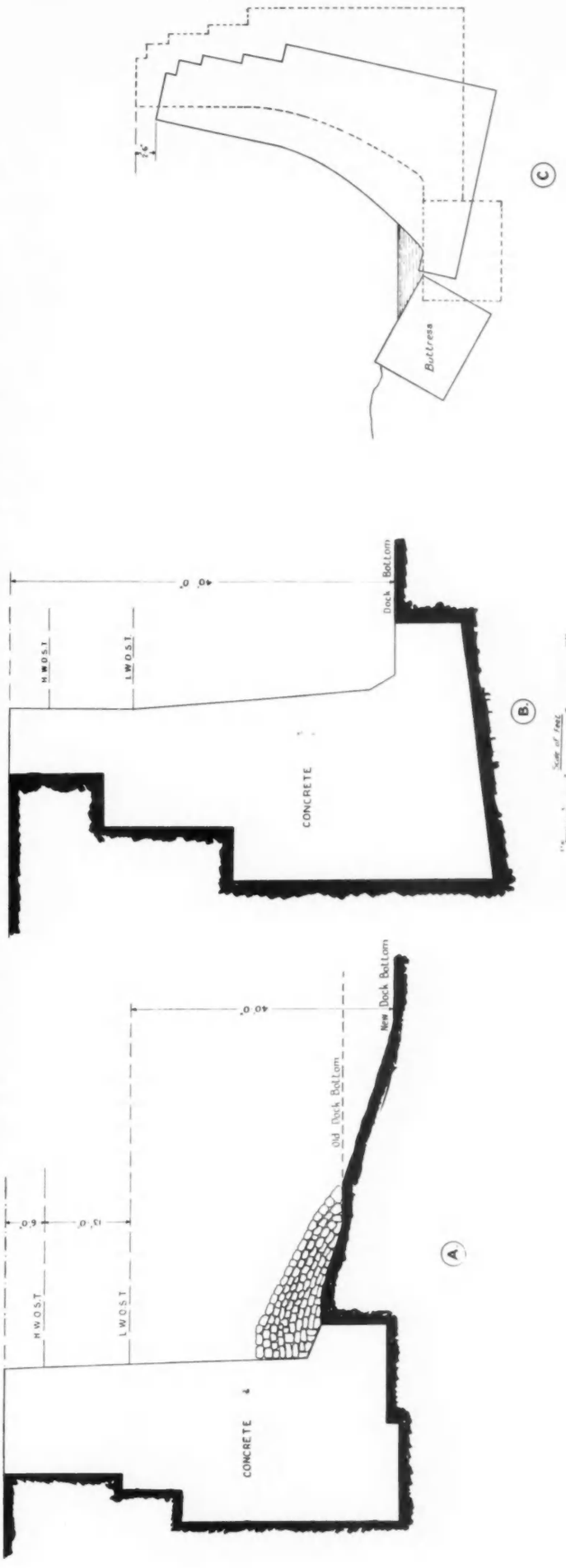


Fig. 4.

Dock and Harbour Walls—continued

In Fig. No. 2 are shown some typical borings in the port of Belfast, for which—and the information that follows—the writer is indebted to Mr. W. Y. Chamberlain, M.Inst.C.E. From these borings it will be seen that the strata at this port is not particularly good for the construction of gravity dock walls. Alongside these borings are drawn several types of dock walls actually built and now in existence in the port. That marked (a) was constructed in 1864 when the Spencer Basin and Dufferin Dock were constructed. Shortly after the commencement of the backing of the walls, they showed signs of weakness. Toes were therefore built in front of them at intervals and the walls themselves were tied back to land piles. This work was entirely successful, except in one instance, the walls elsewhere standing intact to this day. In this one case, however, the wall in the entrance to the Spencer Tidal Basin collapsed. From the information available it seems that it was a clear case of a wall overturning on its toe, followed by sinkage of the toe, and then sliding in a forward and downward direction. The back filling at the time of construction was described as a pulpy semi-fluid mass, and the excavations, carried out when the wall was originally built, had to be formed with slopes of not less than 3 to 1 (18½ degrees), and in some cases with as flat a slope as 6 to 1 (10 degrees). It is interesting to note, however, that a wall of similar section has stood intact on the other side of the River Logan without any strengthening work having been found necessary. In this case, however, the conditions are known to have been in some respects more favourable, as no supporting piles were found necessary in the original design, the foundations being of hard sand, and the filling behind was of better materials, but it was known that the super load was greater.

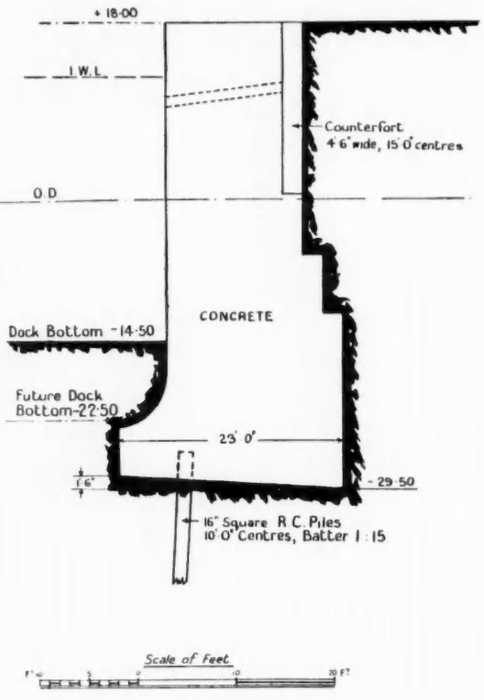


Fig. 5.

On the other hand, the section of this wall is obviously as little more than sufficient as the other was short of stability, seeing that a failure occurred in 1894, nearly 30 years after construction. However, the failure at this time was ascribed to the sand having been withdrawn from under the wall by the action of ships' propellers; this was no doubt the cause of the actual calamity, but there was probably only a very small factor of safety in the wall. It is understood that the safety of these walls is to-day regarded with some anxiety.

Fig. No. 2 (b) shows the section of the 1864 wall as rebuilt after the failure of the original section.

Walls (a) and (b) Fig. No. 3 are of two distinct types, the former constructed in 1897 being a pure gravity type, while the latter, built in 1911, is enclosed in sheet piling.

In the course of an article on "The Quay Walls of Southampton" in this journal, Mr. F. E. Wentworth-Sheilds, O.B.E., M.Inst.C.E. (See *The Dock and Harbour Authority*, February, 1926), describes several walls of different sizes in the aforementioned port with considerable information as to the foundations and back filling.

Fig. No. 3 (a) indicates one of the walls in question—a quay wall on the river Test, built it is believed about the year 1887. The foundation was carried down 12-ft. below the dredged dock bottom, and the wall rests upon a bed of fine sand which probably has considerable frictional resistance. Great care was taken to ensure that the backing material was such as to reduce as far as possible the lateral pressure. Near the base the backing was composed of peat, gravel and fine sand; but above the peat a stratum of soft mud was removed and replaced with chalk carefully rammed in layers.

Although the chalk shrank and cracked, it was considered to be a very suitable material for backing on account of its large angle of repose. This wall is in a very stable condition, as may be illustrated by the fact that to provide an additional depth of 10-ft. to accommodate the largest vessels which use the port, the ground in front at a distance of 50-ft. from the face of the wall has been dredged away. To compensate for any possible loss of support by the removal of this material, a toe of rubble stone was formed at the foot of the wall. This is shown in (a) Fig. No. 4.

Another wall (b) Fig. No. 4, described by the same writer, is that surrounding the Ocean Dock, which is also used by the largest vessels that frequent the port. It is stated that calculations appear to indicate that this wall is one of the most stable of the Southampton dock walls.

In this case the foundation is carried down to 10-ft. in front and 15-ft. at back below the dredging line, and the wall rests, for the most part, on sandy clay, and elsewhere on fine sand. The wall is backed with virgin ground up to 30-ft. from the cope level; from this point to the cope the backing is composed of sand and clay from the dock excavations rammed in layers.

It will be interesting now to turn to the Empress Dock wall (c) Fig. No. 4—built in 1882—part of which failed although built upon practically the same kind of strata as that upon which the Ocean Dock wall was founded, and backed by filling of much the same character. This wall was only 45-ft. from cope level to dock bottom however, and 51½-ft. to the horizontal foundation level. The foundation is described as fairly firm sandy clay, and the lower part of the wall is backed by virgin clay, as in the Ocean Dock wall, being built in a timbered trench. The backing of the upper part is also similar to that of the Ocean Dock wall.

When the backing had been completed to cope level and the ground in front had been removed to dock bottom level, the north wall of the dock moved forward—water had not yet been admitted to the dock—the maximum movement being about 23-ft., the wall remaining upright. This proved that the friction at the base of the wall plus the resistance of the material in front of the toe was insufficient to resist the lateral pressure of the backing material. That portion of the wall which had moved was demolished and rebuilt to the same dimensions, but with the foundations taken down to 15-ft. below dock bottom, instead of 6½-ft., and the result was entirely satisfactory.

The walls around the other sides of the Empress Dock were obviously in a very doubtful state of equilibrium, and blocks of concrete 20-ft. by 15-ft. wide and 12-ft. deep were placed in front of the walls 30-ft. clear apart, which remedy was satisfactory except in the case of the west wall and the east wall; the latter moved forward carrying the blocks with it, not overturning about the toe but collapsing backwards about its heel. The west wall was only saved by building a new wall in front of it.

The writer is indebted to the Port of London Authority for the following details of the dock walls of the reconstructed Quebec Dock in the Surrey Commercial group of docks, which was completed in 1928 and is illustrated in Fig. No. 5.

The foundation of these walls was upon ballast, and ballast obtained over the site was used as backing. Twelve-inch earthenware drain pipes were incorporated at intervals along the walls to reduce the hydraulic pressure at the back of the wall. Sixteen-inch square reinforced concrete piles were driven at 10-ft. centres 7-ft. from the toe of the wall, battered 1 in 15.

The normal super load of the quay is that imposed by timber, which is stacked right up to the coping edge of the dock wall.

The case of the failure of the Kidderpore Dock walls, Calcutta, which occurred during their construction in 1889-1890, is not without interest, and as considerable information as to the conditions in existence at the time is available some details are here given.

The foundations at Calcutta were very treacherous, consisting of strata of silt, blue clay, and running sand. The original walls of brickwork were of hollow section to reduce the load on the foundation while the width of the base was made particularly large, also for this reason. The total height of the wall was about 43-ft. from foundation level, and 36-ft. from the dock bottom, the width of base being 35-ft. The cavities in the wall amounted to about 33 per cent. of the total area of

Dock and Harbour Walls—continued

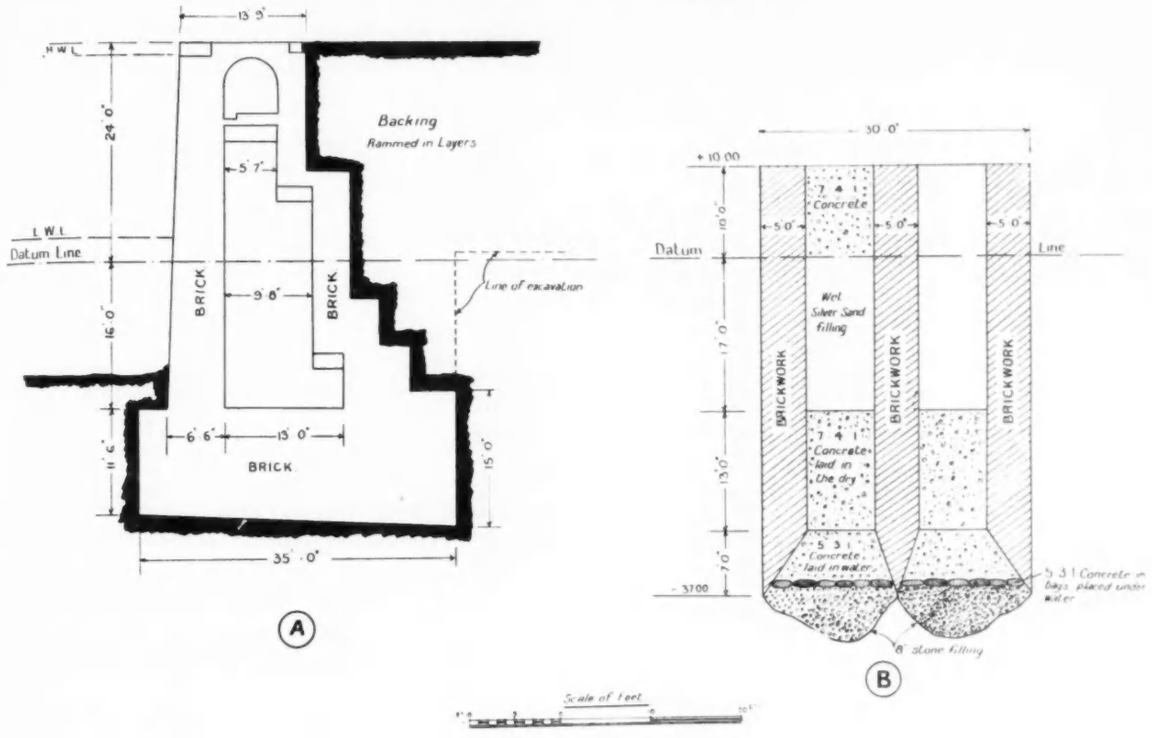


Fig. 6.

cross section. The reduction in weight, however, appears to have been overdone for the walls moved forward. Difficulties were experienced during construction owing to the timberwork of the trenches collapsing on account of excessive pressure from the soil. Eventually the walls were constructed in isolated trenches, the timberwork being driven from a level of 27-ft. below coping, above this level the excavation being carried out with side slopes of 3 to 1.

As the work proceeded a berm or mound was formed in front of the wall, its top being 16-ft. above dock bottom, it being the intention to admit the water to the dock before its removal. No account of the support from this earth was allowed for in the calculations for stability of the wall. Meanwhile, the filling—the material previously excavated—was placed (being rammed in layers near the wall). At the end of 1890 it was observed that the berm appeared dry, cracked and shrunken. The filling had by now reached a level of from 6 to 15-ft. below coping level at the back of the wall. It was at this time that the East wall moved, and in a length of approximately 2,000-ft. slid forward bodily a maximum distance of 7½-ft. The south-west wall also moved over a length of 450-ft. by a distance of about 12½-ft., and at one place tipped slightly backwards. Further movement was arrested by filling the dock with water.

The failure occurred after the end of the rainy season and was apparently due, primarily, to the natural slope of the back filling and strata having a less value at the time of failure than 3 to 1, owing to its saturated condition.

It also seems by reason of there being little deviation from the vertical of any consequence that the plane of rupture or slip of the backing extended to a greater depth than that of the foundation of the walls.

It is also evident that the walls depended upon the hydrostatic pressure on the faces for their subsequent stability, which supplied the necessary Factor of Safety and should in such a case be easily determined.

Fig. No. 6 (a) shows the section of the walls originally constructed.

Monolith Walls

Where large foundation pressures have to be dealt with, there arises the necessity for transmitting these pressures to a stratum of sufficient strength and thickness to withstand the load. Such a stratum may, and in fact usually is, only to be found at a considerable depth below the surface of the ground. Again, difficulties may be experienced in sinking trenches for the construction of gravity dock walls owing to the nature of the intervening strata. Dock and harbour works have frequently to be built upon alluvial deposits in river estuaries, and their bases being below water level open trenches present great difficulty and are often impossible, or very costly.

The term "monolith" nowadays is strictly applicable to those structures of brick or more usually concrete—square or rectangular in plan with hollow wells, from which the ground is excavated during the process of sinking. Early monoliths were circular in plan and some were built practically the full height before sinking. I believe that the credit for the earliest form of monolith structure belongs to my late regiment—the Royal Engineers—which about 100 years ago used this form of structure for bridge foundations in the alluvial plains of India.

In some cases the sinking of monoliths has been done wholly or partly under compressed air, and in these cases the monoliths usually have single wells. Cylinders composed of cast iron, steel or reinforced concrete rings, are forms of monolith construction, but are not usually to be found now in connection with solid dock walls.

Caissons—really an enlarged type of cylinder, and in this country largely associated with bridge foundations in water ways—are often used on the continent, and there is the special form of concrete caisson or "pontoon" wall which is also greatly used abroad, in places where they can be floated over the site and then sunk on to a foundation previously prepared.

As before mentioned, owing to the exceedingly treacherous nature of the ground at Calcutta, consisting of silt, clay and running sand, considerable movement of the walls, as originally constructed in 1889-90 occurred. When, therefore, the new King George Dock was constructed in 1906, Sir Frederick Palmer adopted monolith type walls. These were constructed of brick, the dock walls being 30-ft. square, and the entrance walls 40-ft. square. The shoes were of steel tied into the brickwork by means of steel rods.

A cross section of the monoliths for the Dock Walls is shown in Fig. No. 6 (b). (Min. Proc. I.C.E.).

At Tilbury Docks, Essex, when the main dock was extended in 1912-1917 (Min. Proc. I.C.E., Vol. ccxv.), monolith walls were finally adopted owing to considerable trouble having been experienced in sinking trenches for the first proposal of a mass concrete wall, because of the water pressure forcing up the ground in the trenches when they had been excavated to the required depth. These monoliths are of similar design to those later adopted at Karachi by the same engineer—Sir F. Palmer. They were 30-ft. square with four wells 10-ft. square, the spacing of the monoliths being 6-ft. 5-in., however.

The strata passed through in sinking consisted of clay and peat, and the monoliths were founded 2-ft. below the surface of a deep stratum of ballast, this distance being approximately 15-ft. below the dock bottom.

The front wells were plugged and filled up to a level of 10-ft. above foundation level, while the back wells were plugged and filled to a height of about 38-ft. above foundation level; above this level four back courses of concrete blocks were removed after sinking, and filling then deposited up to the quay level.

Dock and Harbour Walls and their Foundations

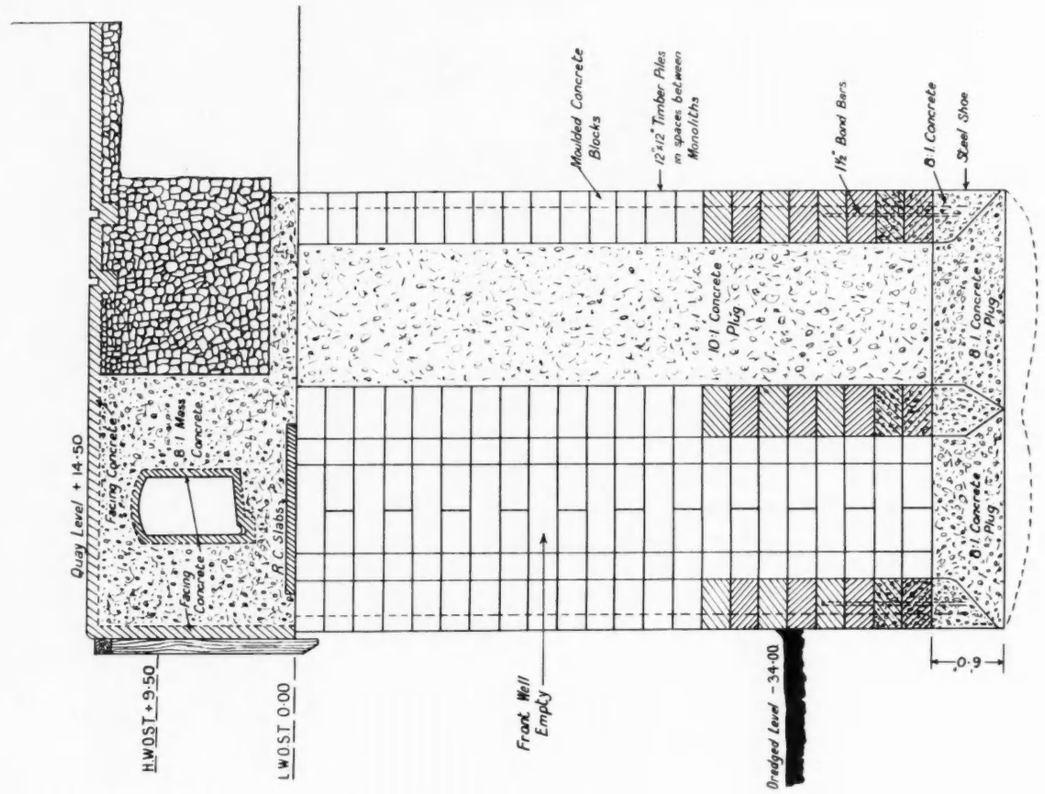


Fig. 8.

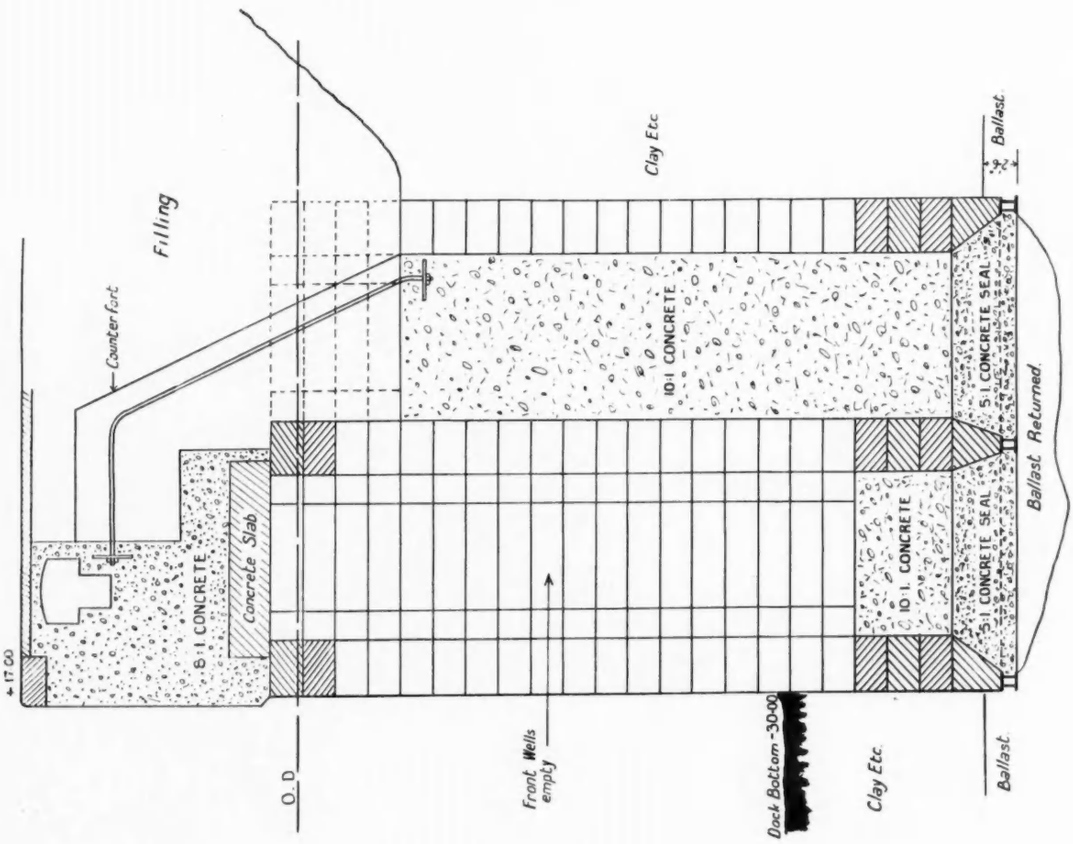


Fig. 7.

Dock and Harbour Walls—continued

The mass concrete superstructure oversailed the face line of the monoliths, thus allowing some latitude for any inequality of alignment of the monoliths.

Fig. No. 7 shows the typical cross section of the Tilbury dock wall (Min. Proc. I.C.E.).

In a description of the port of Karachi which appeared in *The Dock and Harbour Authority* of April, 1927, Mr. T. H. Coad, M.Inst.C.E., Chief Engineer, Karachi Port Trust, gives the details of the West Wharf Quay Wall which was then in course of construction. The following is a brief abstract of the main points of interest:

The main ship channel was first dredged to a depth of 28-ft., the spoil obtained being deposited in shallow water to form an area on which the concrete monoliths were placed for sinking in their permanent positions to form the quay, and upon the remainder the sheds and railway tracks were built. The monoliths consisted of concrete blockwork built up to form units 30-ft. square with four 10-ft. square wells, the whole resting upon a steel curb, provided with cutting edges and filled with mass concrete. The material met with was mostly layers of clay and compressed sand with occasional layers of conglomerate shell and gravel. Five-ton cranes working on 75-ft. span goliaths removed the material from the wells by means of grabs, the monoliths sinking easily through 25-ft. to 30-ft., after which kentledge was added sufficiently to overcome the skin friction on the sides. The amount of kentledge in some cases amounted to 2,000 tons. Sinking was continued until the cutting edges reached a depth of 40-ft. to 50-ft. below low water datum.

The monoliths were placed 4-ft. apart, and the intervening spaces were grabbed out and filled with mass concrete, thereby making a continuous wall. The monoliths being founded, the wells were cleaned out and plugs of mass concrete were placed in to prevent further sinking. The back wells were then filled up to the top with 10 to 1 concrete, but the front wells were left unfilled except for the plugs, a reinforced concrete slab being placed over the top, upon which the mass concrete superstructure was built. As the various lengths of quay were completed the material in front of the monoliths was dredged out to 34-ft. below low water datum.

Fig. No. 8 shows (by courtesy of Messrs. Rendel, Palmer and Tritton, London Agents for the Trustees) the typical cross section of the monolith wall described.

As may be imagined, somewhat similar difficulties with monoliths in regard to the spewing up of ground upon excavating the interior may be experienced as with open trenches. Where the site of the monoliths is in waterlogged ground and the upper strata passed through in sinking consists of soft alluvial deposits, mud, sand, running sand, etc., this result is indeed very likely to occur as the interior of the wells is pumped and grabbed out. Sinking, however, can usually be carried out by the use of kentledge and grabbing out, or recourse may be had to the use of compressed air. This latter was the method adopted at Rochefort, where single well monoliths were used. In this case, some 50/90-ft. of mud had to be passed through before reaching a stratum sufficiently good for forming the foundation. The monoliths were 26¼-ft. by 19¾-ft., the wells being 13¼-ft. by 8½-ft. Pumping out the soft mud proved futile as the mud entered the well from outside as fast at it was removed from the interior. An air chamber was therefore constructed with a domed roof in the interior of the well, about 16-ft. above the shoe of the monolith, complete with an air-lock shaft; the portion above the roof of the air chamber was then filled in with concrete. Further sinking was then carried out under compressed air, the material being removed by hand and passed out through the air-lock shaft.

These dock walls are peculiar in this respect, that the monoliths are spaced 30-ft. apart, acting as isolated pillars, the reason apparently being that the top of the monoliths being below dock bottom there was no necessity for a watertight barrier between the ground at the front and back of the monoliths. Circular arches were built between each monolith seated on their tops, upon which the superstructure wall was constructed.

A type of construction not seen in this country but frequently adopted in France and other countries of the European Continent is that of a caisson of steel sunk by compressed air, upon which a gravity wall is built as sinking is proceeding—much in the same manner in this respect as in the ordinary monolith construction. The steel caisson is left in position and this form of construction is therefore known in France as "La Systeme des Caissons Perdus." The caisson is constructed of the same width, or wider than the superstructure wall to be built upon it, and deep enough to give ample working space for carrying out the excavation within.

The length of the caissons used varies from 50 to 150-ft., depending upon the nature of the strata and the site of the work. There are the necessary air-locks and shafts, usually two, one for materials and one for men. In most cases the steel caisons are built upon the ground in the position in which they are to be sunk and excavation is then commenced. In some instances, where the ground is dry, excavation of the site is commenced in the open with sloping sides taken down to a depth at which timbering becomes necessary or water is reached, the steel caissons then being built at this level. Excavation is then commenced within the caisson, compressed air being applied when necessary. As the caisson sinks, the solid wall is built on top of it in the open in such a way that its weight assists the sinking process and keeps the caisson upon a level plane. The bottom of the caisson having reached the desired depth and resting upon a sound strata, the working space, together with the air-lock shafts, are filled up with concrete.

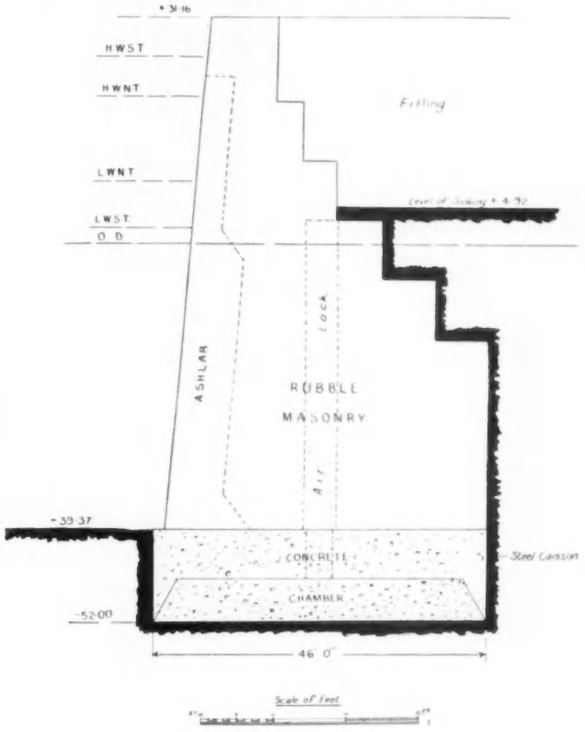


Fig. 9.

In other cases, caissons as above described have been built ashore and floated out into position at high water and sunk. In this case, however, the top of the caisson should be dry at low water to enable the superstructure wall to be commenced and brought up above high water before sinking the caisson into the soil is commenced. Such a caisson construction and wall was adopted at Le Havre in 1920, and is described by Mr. Du-Plat-Taylor in the January, 1921, issue of *The Dock and Harbour Authority*. The following is a brief description; there is, however, no data given as to the strata met with during sinking or as to the strata upon which the caisson is founded.

The quay wall on the north side of the new basin was constructed by sinking a series of caissons to an approximate depth of from 40 to 50-ft. by the use of compressed air. The steel caissons were 111-ft. long by 26-ft. wide, and were built ashore, launched into the water and floated into their positions and sunk, the superstructure walls being built in the manner last described. The walls were of rubble masonry in lime mortar, with a granite face on the water side.

Fig. No. 9 shows the typical cross section of the completed wall.

In conclusion, the reader's attention is directed to an article by Mr. Wentworth Sheilds, O.B.E., M.Inst.C.E., entitled "Quay Walls at Southampton," in *The Dock and Harbour Authority* of February, 1926, which deals with various dock walls in that port, and to articles which appeared in the same journal, entitled, "Monolith Foundations," a lecture delivered at a meeting of the Junior Institution of Engineers, by H. Cartwright Reid, C.B., J.P., M.I.C.E. (Hon. Mem.), July, 1931; also

"Jetties in Tidal Waters," April, 1929;
"Wharf Walls in Tidal Waters," April, 1930;
"Some Notes on the Design of Gravity Wharf and Dock Walls," June, 1930;
"Embankments in Tidal Rivers and their Protection," November, 1931;

the four latter by the present writer.

The Port of New York

Latest Data issued by the Bureau of Commerce

The Stake of the Port of New York in Foreign Trade.

THE PORT OF NEW YORK DISTRICT is renowned as a residential centre, an industrial centre, a shopping centre, an amusement centre, and a financial centre. Its economic and social life is so varied and complex that even its own citizens sometimes forget that it grew to its present stature by reason of its harbour, the gateway to the New World.

Half of the overseas commerce of the United States is exported or imported by steamships docking at its magnificent piers. It is handled by railroads, trucks, and coastal boats. It is warehoused, financed and despatched by storage, forwarding, and brokerage companies. The financial return on port terminal investments and the employment given to labour depends upon the continued prosperity of our overseas trade. If world commerce flourishes the port flourishes. If overseas commerce is stopped, a large part of the port facilities become valueless. Nearly a billion dollars is invested in piers, dry docks and harbour equipment in the Port of New York. The overseas shipping industry represents an investment of nearly two-and-a-half billion dollars. The Eastern railroads, which carry export traffic from the interior to the Port of New York and take imports back to the interior, have nearly five billion dollars invested in their plant.

The ocean-going vessels operating from the Port of New York spend over two hundred million dollars a year berthing, towing, piloting, fueling, provisioning and repairing. New York bankers held in their portfolios at the end of February, 1932, $725,000,000 worth of acceptances largely used in financing foreign trade.

It is estimated that there are 20,000 stevedores handling steamship freight in the port. There are 50,000 seamen in the crews of the overseas vessels entering the port. The Eastern railroads serving the Port of New York employ more than 500,000 people and there are uncounted thousands of truckmen, warehousemen, freight forwarders, brokers, and others engaged in handling the foreign trade of the port, which was four billion dollars in 1929 and has been cut in half since then.

Value of Foreign Trade at the Port of New York.

The Port of New York retains its position as the gateway for imports into the United States, according to reports of the United States Department of Commerce, which show that 52 per cent. of the value of imports of the country during the month of February, 1932, passed through this port, as against 48 per cent. a year ago.

The value of imports and exports at New York in February amounted to $115,365,000, a decline of 34 per cent. as compared with the same period last year. Exports were $47,041,000, a decline of 49 per cent., and imports amounted to $68,324,000, a decline of 18 per cent.

	February		Net Change	
	1932	1931	Amount	Per Cent.
	$	$	$	
Exports	47,041,000	91,405,000	—44,364,000	—48.6
Imports	68,324,000	83,742,000	—15,418,000	—18.4
Exports and Imports	115,365,000	175,147,000	59,782,000	—34.1

New York as the Financial Centre of Commerce.

Commerce and trade follow well defined lines. Ships will go where cargo is to be found, and freight converges to those points where diversified transportation is available. Such a point is New York Harbour. The frequency of sailings to all parts of the globe attracts freight to New York for movement beyond, and vessels coming to this port are more assured of return cargo than at any other port. It follows quite naturally, that such a cross-roads of transportation should become a very active financial centre, where merchants may arrange the money transactions incident to the movement of their goods.

An analysis of reports of the American Acceptance Council shows that 80 per cent. of the volume of all types of bankers' acceptances outstanding in the country at the end of February, 1932, were handled in the Second Federal Reserve District, which is New York. This business amounted to $732,905,000, while that of the First District, the principal city of which is Boston, handled $57,620,000 of acceptance business. A great part of this kind of finance handled at New York is in connection with foreign trade, and amounts to 88 per cent. of that of the country. This available banking service where ships and cargo meet is an important factor at the Port of New York.

Commerce at Port Newark.

The receipts of lumber by vessel at Port Newark in the month of March, 1932, amounted to 12,753,000 board feet, which is a decline of 16 per cent. from last year's figure of 15,091,000 feet for the same period. Inland shipments from Port Newark were 16,497,000 feet, of which 6,957,000 feet were moved out by railroad, and 9,540,000 by truck.

The volume of cargo received by vessel other than lumber, amounting to 20,675 tons, was a decline of 3 per cent. from that of last year. It included 5,130 tons of potatoes, which was 41 per cent. less than in March, 1931. The potatoes received in March, 1931, were shipped from Canada, while those received in March of this year were from Maine.

Twenty-two steamers arrived at Port Newark during the month, compared with 24 in March of last year.

A comparison of the volumq of vessel cargo unloaded at Port Newark during the first three months, or first quarter of the year, with the same period in 1931, shows that receipts of lumber have declined 35 per cent., while cargo other than lumber has increased 11,693 tons, or 31.3 per cent.

RECEIPTS.

	January to March		Net Change	
	1932	1931	Amount	Per Cent.
Lumber (Bd. Ft.) ...	33,245,000	51,438,000	—18,193,000	—35.5
Other Cargo (Short Tons)	49,076	37,383	+11,693	+31.3

Vessel Movements in Foreign Trade.

The number of entrances and clearances of vessels in foreign trade at the Port of New York during the month of March, 1932, were higher than the preceding months of this year. The number of clearances were 5 per cent. higher than in the same period last year, while the entrances were 6 per cent. lower.

	March, 1932		March, 1931	
	No. of Vessels	Vessel Tonnage	No. of Vessels	Vessel Tonnage
Entrances ...	465	2,451,353	494	2,396,654
Clearances ...	512	2,597,147	489	2,323,422

Motor Trucks bring Large Share of Port Tonnage to Steamship Docks.

Motor trucks handle approximately 40 per cent. of the general merchandise cargo of steamships serving the Port of New York, according to a survey just completed by the Emergency Works Bureau under the supervision of the Port Authority. This fact emphasises the increasing value of vehicular crossings such as the four bridges and Holland Tunnel now operated by the port authority in expediting freight operations between various sections of the port.

The check of origin and destination of freight at 45 steamship piers in New York Harbour was carried on four months from December 15th to April 15th, by 175 men paid by the Emergency Works Bureau at the rate of $5.00 per day for three day's service per week out of funds raised through the Emergency Unemployment Relief Committee. This steamship cargo survey is part of the general programme of fact-finding to which some of the Emergency Works Bureau forces have been assigned as a service of public benefit to keep the men usefully employed wihout competing with private industries.

With the co-operation of the steamship companies, records of the origin and destination of pier freight and the method by which the freight is handled to and from the piers were gathered at 43 overseas piers and at two piers handling inter-coastal traffic; these piers were distributed about the harbour as follows:—

Brooklyn Waterfront	22
Manhattan—North River	14
Manhattan—East River	3
New Jersey Waterfront	6

Out of a grand total of 1,179,000 tons, 46.9 per cent. came from points within the port district itself, the remaining 53.1 per cent. being through traffic received from or despatched to points beyond the district.

The major part of the through traffic was handled by lighter to and from shipside, but the local port traffic reached or left the pier by motor truck. The approximate percentage distribution of the total traffic was as follows:—

	*Exports per cent.	*Imports per cent.	Total per cent.
Through Traffic	66.3	40.5	53.1
via rail	3.2	1.5	2.3
,, railroad lighter	43.3	20.9	31.9
,, steamship lighter ...	13.4	14.3	13.9
,, railroad truck	3.0	1.2	2.1
,, steamship truck	1.1	0.7	0.9
,, private truck	2.3	1.9	2.0
Local traffic	33.7	59.5	46.9
via lighter	11.6	8.8	10.1
,, truck	22.1	50.7	36.8
Total	100 per cent.	100 per cent.	100 per cent.

*Including a small amount of east and westbound intercoastal tonnage.

The Port of New York—continued

Sixty-eight per cent. of the export cargoes are taken overside from railroad lighters, lighters transferring freight from other steamships, and private lighters; most of the remainder comes by truck and a small portion by direct rail delivery from tracks on the pier.

Of the imports a much greater portion—54.5 per cent.—is handled from the piers by truck and 44 per cent. by lighter.

The above distribution covers only general cargo ships and excludes grain which comes alongside in barges. If full cargo freight ships and tankers handling oil, sugar and flaxseed for local port industries were included a larger percentage of the total port traffic would be recorded as local in character.

The local freight originating in or destined to points within the port district was distributed as follows:—

	Lightered per cent.	Trucked per cent.	Total per cent.
Manhattan-Bronx	0.1	24.9	25.0
Brooklyn - Queens - Staten Island	2.1	8.0	10.1
New Jersey	7.9	3.9	11.8
Total local freight ...	10.1	36.8	46.9

In addition to presenting a picture of the movement for the total port, the origin and destination survey shows striking facts concerning the separate waterfronts. The most significant result of the waterfront analysis is the conclusion that freight is freely trucked from all parts of the district to steamship piers on any waterfront, probably on account of the excellent system of bridges, tunnels and ferries which link up all sections of the port.

Piers located on the Brooklyn waterfront draw more than half of their export tonnage from Manhattan and the Bronx and as much from New Jersey as from Brooklyn itself. Conversely, piers located on the New Jersey waterfront draw more than half of their tonnage from Manhattan and the Bronx and a considerable share from Brooklyn and Queens. There is a general tendency for a larger share of the imports to be destined to the immediate locality in which the pier is located, probably on account of the more extensive storage of import freight in nearby warehouses. The flexibility of communication within the port district, however, is marked even for import freight. The percentage distribution of export and import freight, locally trucked, by origin and destination for groups of piers on each waterfront, is as follows:—

Waterfront Pier Location	Origin or Destination of Local Truck Shipments: Manhattan Bronx per cent.	Brooklyn Queens per cent.	Staten Island per cent.	New Jersey per cent.	Total Trucked Locally per cent.
Export—					
Manhattan—North River	12.5	1.8	0.2	2.5	17.0
Manhattan—East River	17.6	3.3	0.4	4.8	26.1
Brooklyn	18.9	4.8	0.4	5.6	29.7
New Jersey—Hoboken	8.1	0.7	—	1.9	10.7
Imports—					
Manhattan—North River	51.7	4.0	0.1	2.0	57.8
Manhattan—East River	53.9	3.8	0.1	11.2	69.0
Brooklyn	29.3	16.3	0.2	3.3	49.1
New Jersey	20.3	2.2	0.1	9.1	31.7

Summing up the situation with respect to movement of steamship freight by truck between parts of the port district the survey shows that 24 per cent. of the total import and export freight, or 57 per cent. of the total freight received by truck at the piers cross some vehicular bridge, tunnel, or ferry to reach the pier and that 17 per cent. of the total trucked freight crosses the State Line between New York and New Jersey.

The detailed distribution of business on each pier will be furnished to the co-operating steamship company and will give a useful picture of the zones furnishing most of the cargo at the present time.

Steamship Sailings.

The idea of cruising in nearby foreign waters aboard one of the many magnificent liners that ply out of the Port of New York, seems to have captured the imagination of the American public in no uncertain terms. Since January 1st, 93 of these foreign cruises have been recorded, an average of one a day. This compares with 39 reported for the same period of 1931 on a total of 127 for all of last year. The encouraging feature of this pleasure service is the large number of passengers carried. In several instances vessels were filled to capacity.

Sailings in regular services are still showing decreases from last year, although 8 direct sailings a week to the United Kingdom, 10 to North European ports, 4 to French ports and 3 to Italian ports are still maintained from this port, assuring the fastest transit time between America and the Old World.

On Saturday, March 19th, the peak day of the month, a total of 76 vessels sailed from this harbour Of these, 32 cleared direct for foreign ports, including 6 to United Kindom, 2 to North European ports, 9 to Caribbean-Mexican ports, 2 to Rio de Janeiro and the River Plate, 2 cruisers and 3 tankers. Of the 44 sailings in domestic service, 4 were direct to the Pacific Coast, 7 to South Atlantic and Gulf ports, 7 tankers and 3 coal carriers.

Steamship Passenger Traffic.

Another decrease of approximately 27 per cent. is reported in the total number of steamship passengers travelling abroad by way of this port during February compared to the number recorded for the same month last year. The decrease totals 13,848 and is almost equally divided between aliens and citizens.

	February, 1932	February, 1931
INBOUND—		
Aliens, Immigrant	1,285	1,880
Aliens, Non-Immigrant	4,638	5,406
U.S. Citizens	10,084	11,477
Total ...	16,007	18,763
OUTBOUND—		
Aliens, Emigrant	3,238	2,889
Aliens, Non-Emigrant	6,892	12,262
U.S. Citizens	10,844	16,855
Total ...	20,914	32,006
Total Inbound and Outbound	36,921	50,769
Total for Two Months	81,469	98,029

Grain Exports.

Grain exported from the Port of New York is chiefly of Canadian origin, passing through the port in bond. The movement abroad of Canadian grain from ports in the eastern part of Canada during the month of February, 1932, was 66 per cent. lower than during the same month last year. This reduction is reflected in the movement of Canadian grain through the Port of New York, which shows a decline of 65 per cent. in the same period.

Domestic grain, however, although but a small part of the exports of this commodity at New York, continues to move in greater volume through this port than in corresponding periods a year ago, showing a gain of 333 per cent. in February.

	February 1932 Bushels	February 1931 Bushels	Net Change Amount	Net Change Per Cent.
Domestic and Canadian Grain	2,288,000	5,474,000	—3,186,000	—58.2
Domestic Grain	394,000	91,000	+303,000	+333.0
Canadian Grain	1,894,000	5,383,000	—3,489,000	—64.8

Receipts of Grain and Visible Supply at the Port of New York.

The receipts of grain, both domestic and other, at the Port of New York during the month of March, 1932, amounted to 2,372,500 bushels, all of which arrived by rail, with the exception of 1,200 bushels of corn from Argentine. Compared with the same period last year, this represents a decline of 699,300 bushels, or 23 per cent. The following table shows the receipts by grains:—

RECEIPTS (Bushels).

	March 1932	March 1931	Net Change Amount	Net Change Per Cent.
Wheat	1,980,500	2,606,000	—625,500	—24.0
Barley	—	144,900	—144,900	—100.0
Corn	76,200	160,500	—84,300	—52.5
Oats	162,800	136,400	+26,400	+19.3
Rye	153,000	24,000	+129,000	+537.5
All Grain	2,372,500	3,071,800	—699,300	—22.7

The visible supply of grain in storage in the port on April 2nd, 1932, and April 4th, 1931, which is the nearest comparable date, shows a much greater supply of grain, and particularly of wheat, on hand this year as compared with approximately the same date in 1931.

VISIBLE SUPPLY (Bushels).

	April 2 1932	April 4 1931	Net Change Amount	Net Change Per Cent.
Wheat	4,317,000	1,857,000	+2,460,000	+132.5
Barley	67,000	50,000	+17,000	+34.0
Corn	1,000	37,000	—36,000	—97.3
Oats	29,000	15,000	+14,000	+93.3
Rye	32,000	16,000	+16,000	+100.0
All Grain	4,446,000	1,975,000	+2,471,000	+125.0

Inter-Coastal Lumber.

The shipments of lumber from the Pacific Coast to the Atlantic and Gulf seaboard during the third quarter of 1931 amounted to 509,165 long tons, according to a report of the United States Shipping Board. Of this amount 251,438 tons, or 50 per cent. was discharged at the Port of New York, and 22,876 tons passed through the harbour and up the Hudson River to Poughkeepsie and Albany.

Aden Port Trust.

The returns for the month of February, 1932 of shipping using the port are as follows:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	112	483,668
,, ,, under 200 tons ...	4	542
Government Vessels	9	28,286
Dhows	86	3,401
PERIM.		
Merchant Vessels over 200 tons ...	13	47,194

TRADE OF THE PORT.

Article.	Unit.	Imports.		Exports.	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	2,543	66,000	0	0
Coffee	Cwts.	8,771	3,05,960	9,443	4,26,735
Grain, Pulse and Flour	,,	44,207	2,41,046	21,021	1,15,296
Gums and Resins	,,	2,724	51,999	3,263	60,637
Hardware	—	0	18,263	0	17,343
Hides, raw	No.	2,685	3,208	1,017	2,473
Oil, Fuel	Tons	28,201	8,46,030	0	0
,, Kerosene	Gls.	26,151	19,080	2,860	2,145
,, Petrol	,,	26,106	32,869	1,600	2,076
Salt	Tons	0	0	19,480	2,19,360
Seeds	Cwts.	3,782	37,428	1,026	9,468
Skins, raw	No.	204,860	1,13,711	199,121	2,01,918
Sugar	Cwts.	14,717	1,02,833	10,679	74,846
Textiles—					
Piece Goods, Grey	Yds.	4,470,203	6,95,097	3,612,680	5,93,162
,, ,, White	,,	642,540	1,48,322	273,680	68,930
,, ,, Printed or Dyed ...	,,	599,489	1,52,359	756,095	1,92,051
Twist and Yarn	Lbs.	299,140	1,54,920	249,696	1,24,921
Tobacco, Unmanufactured	,,	166,208	16,151	356,944	55,166
,, Manufactured	,,	36,036	41,689	22,764	17,124
Other Articles	No. of Pkges.	36,908	8,50,817	17,210	3,50,983
Treasure, Private	—	0	2,90,382	0	4,03,470
Total ...	—	—	41,88,164	—	29,38,104

The number of merchant vessels over 200 tons that used the Port in February, 1932, was 112, as compared with 117 in the corresponding month last year, and the total tonnage was 484,000 as compared with 463,000.

Excluding coal, salt, fuel oil and Military and Naval stores and transhipment cargo, the total tonnage of imports in the month was 7,300 and of exports 4,500, as compared with 8,400 and 4,500 respectively for the corresponding month last year.

The total value of imports, excluding Government stores was Rs.41,88,000/-, as compared with Rs.38,33,000/- for February, 1931, and of exports Rs.29,38,000/- as compared with Rs.26,21,000/-.

The total value of both imports and exports together was Rs.71,26,000/- as compared with Rs.64,54,000/- for the corresponding month last year.

Imports during the month were above those for February, 1931, in the case of coffee, hardware, raw skins, sugar, grey and white piece goods, twist and yarn, manufactured tobacco and private treasure; and below in the case of grain, pulse and flour, gums and resins, raw hides, seeds, printed or dyed piece goods, and unmanufactured tobacco.

Exports were above those for February, 1931 in the case of coffee, gums and resins, seeds, sugar, grey and white piece goods and private treasure; and below in the case of grain, pulse and flour, hardware, raw hides, raw skins, printed or dyed piece goods, twist and yarn, unmanufactured and manufactured tobacco.

Bombay Port Trust

At the meeting of the Trustees of the Port of Bombay held on April 19th, 1932, the following were the main items of business:—

A preliminary report on the revenue receipts for the year ended March 31st, 1932, was considered. The aggregate receipts for the year amounted to Rs.232.29 lakhs, as compared with the revised Budget estimates of Rs.235.33 lakhs. As compared with the figures of the previous year the receipts from trade show a falling off of about 11½ per cent., and as compared with 1929-30 a decrease of approximately 25 per cent.

The decrease in tonnage of goods handled at the docks, as compared with 1930-31, amounted to some 595,000 tons, or about 13 per cent., of which imports were responsible for 115,500 tons, or about 5½ per cent., and exports 479,500 tons, or nearly 19 per cent. The tonnage of shipping, in and out, showed no appreciable variation from the figures for 1930-31.

The original estimates of expenditure were reduced by about Rs.18½ lakhs and the net loss on the year's working is expected to be in the neighbourhood of Rs.24 lakhs, which will be met from the revenue reserve fund. The figures are not yet final.

At a meeting of the Trustees of the Port of Bombay held on May 3rd, 1932, the following were the main items of business disposed of:—

Mr. W. R. S. Sharpe, M.Inst.T., Chairman, was elected to represent the Bombay Port Trust on the G.I.P. Railway Local Advisory Committee for the ensuing term of two years.

An expenditure estimated at Rs.1,92,119 was sanctioned for maintenance and renewals of rails and sleepers on the Bombay Port Trust Railway during 1932-33. An estimate of Rs.14,910 was also sanctioned for renewing with pre-cast concrete slabs certain portions of the floors of Alexandra Dock Transit Sheds Nos. 3, 4 and 7.

An amendment of the docks scale of rates was approved to provide for a 50 per cent. reduction in the watching fees on American cotton.

A scale of charges for hire of the new steam anchor hoy and fire float "Panwel," which recently arrived in Bombay and will take the place of the "Grappler," were framed, subject to the approval of Government.

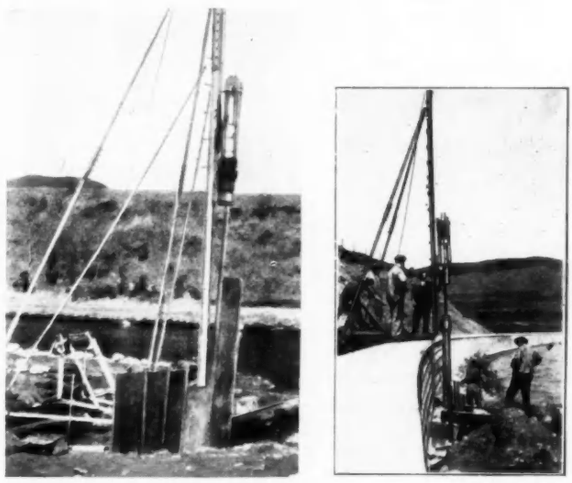
On conclusion of the ordinary business before the meeting, the following resolution proposed by the chairman and seconded by Sir Purshotamdas Thakurdas was carried by acclamation: "The Trustees of the Port of Bombay desire to record their great regret at Sir Ernest Jackson's retirement from the Board owing to his impending departure from India. During his eight years' tenure of office as a Trustee, Sir Ernest has taken the keenest interest in the welfare and progress of the port; his wide experience and sound advice have always been placed unreservedly at the disposal of his colleagues and have been of the greatest assistance to the Administration. In according their appreciation of his valuable services, the Trustees tender to Sir Ernest their best wishes for prolonged enjoyment of health and happiness in his retirement."

Imports and exports at the Port of Bombay:—

	1931 Quarter ended 31st March			1932 Quarter ended 31st March		
	Import Tons	Export Tons	Total Tons	Import Tons	Export Tons	Total Tons
Docks ...	602,599	696,978	1,299,577	479,831	490,252	970,083
,, (transhipment)	12,533	30,217	42,750	15,081	30,686	45,767
Bunders ...	297,941	121,726	419,667	318,486	96,196	414,682
Total	913,073	848,921	1,761,994	813,398	617,134	1,430,532
Total from 1st April to 31st March	2,946,339	2,911,063	5,857,402	2,799,092	2,323,003	5,122,095

Self-contained Portable Pile-driver

PILE-DRIVING has been reduced to the simplest possible terms by the ingenious adaptation of the internal combustion engine. For many years, pile-driving engineers have sought to improve upon the cumbersome steam boiler and the heavy apparatus constituting the average steam-driven plant which requires the employment of five or six men to operate it, and have now responded with considerable alacrity to the appeal of a comparatively new machine of outstanding merit. It has a high output performance, is cheaper to operate, being manned only by a smaller number of men and is portable.

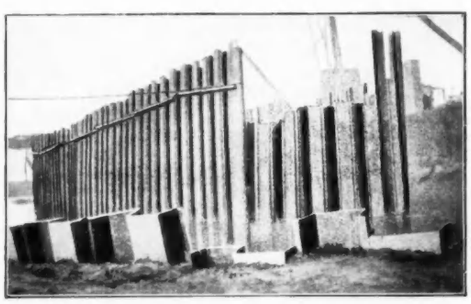


The Johnson Pile-driver.

This revolutionary piece of machinery is manufactured by Messrs. C. H. Johnson and Sons, Ltd., of Smedley, Manchester, who, at the present time, have about 350 portable pile-drivers at work in many parts of the world. They are doing a tremendous lot of steel sheet pile driving for coffer-dam work.

Most of these pile-drivers weigh, with the piston 440 lbs., but there is now in process of manufacture a super model, which is described as the half-ton giant pile driver. It will be eminently suitable for dock and harbour work. This, with the piston, weighs 1,166 lbs., and when filled with water and benzol, 33 lbs. extra.

First of all, however, let us briefly refer to the 440 lbs. machine, which can drive steel sheet piling, wooden piling and concrete piles, with uniform efficiency, at a working cost of about 6d. per hour. The whole outfit is extremely portable and can be transferred from point to point or job to job with only a very small loss of time. Portability is one of its really strong points.



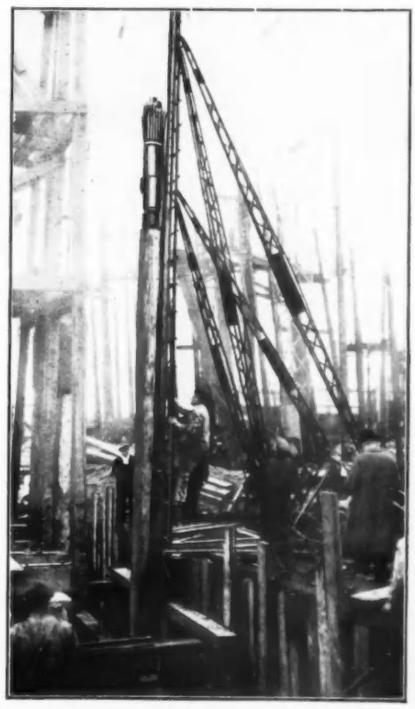
Hundreds of "Larssen" No. 3 Steel Sheet Piles successfully driven on a Cofferdam.

The driver is operated by a benzol engine, the charge of gas being fired by means of a sparking plug from a 6-volt accumulator. Through the explosion, the machine is driven upwards and comes down by its own weight; thus, it affects its own driving action. Construction of the outfit is extremely simple and solid, there being no revolving parts to suffer heavy wear. As a matter of fact, there are only two wearing parts, the cylinder walls and the pistons, and of the 350 drivers in use, up to date, there has not yet been a single cylinder replacement. That is proof indeed of the extremely modest maintenance expenses. The cylinder head is constructed of a new light metal alloy, which is impervious to action by water and puts up a high resistance to heat and frictional influences.

With each pile-driver is supplied supports for lifting the driver on to the pile and these, at the same time, act as a guide to both the driver and the pile. Normally, the supports are built for piles up to 30-ft. long or shorter, and are arranged for vertical driving as well as for driving with inclined piles to 75 degrees. A three-legged support is equipped with a hand winch for drawing up the machine.

The actual pile-driver is a round, cast steel container, in which the fuel and surface carburetter are contained, the benzol gas gaining access to the cylinder, by means of lateral tubes. A sparking plug completes the circuit and the mixture is fired in the usual way. Hardly any preparation is necessary once the machine is erected, for a quick start. All that it is necessary to do is to prime the cylinder and combustion takes place no less certainly than with an ordinary motor car engine. The pile-driver foot is attached to a guide on the mast and is complete with piston rod. The piston rod is built integral with the steel guide which operates on a sliding rail, this rail being the main support. During the driving operation the piston rod, with the bottom part of the sliding rail, rests directly on the pile and slides downwards along the main beam to the extent of which the pile is being driven in. A spike on the bottom of the striker foot ensures the pile being kept in position.

The average speed is 50 to 60 blows per minute, the machine dropping 3-ft. at each blow. A feature that will appeal to the engineer is the automatic action of the pile-driver, through the firing being controlled by an automatic clockwork movement. Assembling the outfit is the work of a few minutes, since the driver is raised in position by means of a double hand geared winch.



The Johnson Pile-driver at Work.

In the design of the plant, careful attention has been given to the factor of portability. The driver is about 7-ft. long and the supports are in one long piece. Everything is so simple that the parts can be put together by native labour, if necessary, with only casual supervision. The heaviest piece is the base which weighs about 1 cwt., so that in places where there is no mechanical transport, sufficient porterage can always be mobilised to effect the necessary transfer.

"What horse-power is required to lift the hammer, 440 lbs., to a height of 3-ft.", asked a representative of *The Dock and Harbour Authority*.

"Approximately 2 h.p.", replied a member of the firm.

"When the machine is dropping through 3-ft. it is travelling at 13.84-ft. per second. As to the force of the blow, this is always determined by the resistance of the ground. If, after each blow, the pile is being driven 12-in., the force of the blow itself would be 2,460 lbs. and so on in proportion until there would be a point where a terrific force is being exerted. For instance, when the pile is moving only ½-in. at the blow, the force exerted is 31,680 lbs. This would be double in the case of the pile going down only ¼-in., and double again, if it only went down ⅛-in.

Self-contained Portable Pile-driver—continued

"As regards our 200 lbs. rammer, dropping 18-in., assuming this machine was working on clay and at each blow was ramming 4-in. deep, the approximate blow would equal 12 lbs. per square inch. If it was only giving a yield of ¼-in., then it would be working at a pressure of 192 lbs. per square inch only. These figures are, of course, only approximate. The 200 lbs. rammer with a 10-in. base, falling through 18-in. on earth which would yield 4-in. per blow, and dropping at the rate of 9.6-ft. per second, exerts a force on the ground of 900 lbs."

One gallon of benzol is sufficient to drive the 440 lbs. pile-driver for six hours and 6d. per working hour will cover cost of fuel and lubricating oil. Some little time ago, an eminent authority made an investigation of operating costs, the particular job being the driving of 12-in. by 12-in. wooden piles through sandy soil. The fuel consumed in driving four of these square piles was less than ¾ gallon of benzol.

Wherever new dock and harbour works are being carried out and especially where the nature of the ground hinders the free movement of heavy plant, capable of heavy duty and for comparatively long periods, the new pile driver which Messrs. Johnson and Sons, Ltd., are now manufacturing is certain to provide a solution of many of the troubles that have been experienced in the past. This pile driver which weighs, without benzol and water, 1,166 lbs. incorporates a slide with striking piece and piston rod which weighs about 750 lbs. The springing height of the pile-driver amounts to 2-ft. to 2-ft. 7½-in. and remains constant.

The use of benzol amounts to, in unbroken work, 1½ to 4 pints per hour. The number of blows per minute amounts to 40-50. The pile-driver support with upright support of 35-ft. and with hand winch weighs about 2,640 lbs. The rammer itself has water evaporation cooling. The water is filled in from above by means of a pouring can. Each filling amounts to about 4 gallons. The water filled in is sufficient in continual work for about 2 hours. After conclusion of work, the cooling water should be run off. For this purpose there will be found under the cooling mantle a discharge screw. The valve arrangement of the half-ton pile-driver corresponds with the valve arrangement of the 440-lb. pile-driver. The valves themselves are spherical so that sticking of the valves cannot take place.

Instead of two suction pipes as in the 440 lbs. machine, four suction pipes are used in the half-ton. The conduct of air into the carburetter passes through the carburetter cover, and from which a funnel-shaped neck, leads into the benzol container, so that the air streaming through the benzol must gain access, and even gasification is obtained.

Messrs. C. H. Johnson and Sons, Ltd., are specialist manufacturers of power plant for public works contractors. One of their leading lines is a portable crane which has four main features. Extension masts can be fitted without affecting the rotary movement and it is possible to mount the crane on a staging at any convenient height whilst keeping the machine and controls on the ground. Points that commend it are:—(1) its utility for excavating, pipe-laying, shaft-sinking and pile-driving work for which the ordinary jib crane lends itself; (2) it is useful for loading lorries, it being possible to add an extension mast giving a lifting height of 25-ft.; (3) on general building work brick and material hoisting two extension masts can be fitted giving a lifting height of 35-ft.; (4) for high buildings the revolving jib with its mounting may be detached from the self-contained water-cooled petrol engine and the hoisting unit and placed at a convenient point in the building. This crane is built in two models, one with a lifting capacity of 6 cwts. and the other with 12 cwts.

Reference has already been made to the portable power rammer which enjoys a multiplicity of uses. It is said that one man with a portable power rammer will keep six men busy shovelling, and we quite believe it. Trenches or road work rammed with this machine may be reinstated immediately because there is no subsidence when a job has been rammed with this machine. The rammer is thrown up by means of the explosion of pure benzol, and then falls by means of its own weight, thereby ramming the material down firmly. The actual ramming engine is a cast steel cylinder which contains the fuel and surface vaporizer. The mixture enters the cylinder by means of tubes at the side, and ignition is effected electrically—for this purpose the navvy carries a battery and coil on his back—on depressing the hand lever at the side, the main valve is first of all closed, whereupon the circuit is made and the mixture is exploded in the usual manner by means of a sparking plug. These machines are being extensively used for consolidating banks for water works, docks, etc.

Port of Southampton Topics

Southampton Dock Statistics for April show Decreases over Last Year.

SOUTHAMPTON DOCK statistics for April again furnish proof of the continuance of the depression in shipping. Compared with the figures for a year ago, there is a decrease under each of the usual ten headings into which the port traffic is divided. But compared with the March figures there are small increases in many of the figures.

Compared with April, 1931, the number of vessels inward and outward decreased by 33, the inward figure being 238 as against 271, and outward 236 as against 269.

There was as a consequence a falling off in the tonnage returns. Gross tonnage inward slumped from 1,442,856 tons to 1,064,024 tons, and outward from 1,429,497 tons to 1,051,195 tons, giving a decrease of 378,832 tons inward and 378,302 tons outward. Net tonnage dropped by 192,824 tons inward and 189,424 tons outward, the returns being 561,800 tons as against 754,624 tons, and 562,315 against 751,739.

The cargo decrease was not as heavy as it has been in several recent months, although in the aggregate the inward and outward decreases, 4,253 tons and 1,713 tons respectively, are approximately 6,000 tons. Inward cargo amounted to 37,969 tons and outward to 28,045 tons, whereas in April, 1931, the totals were 42,222 tons nad 29,758 tons.

The passenger decline during April reached considerable proportions; for inward the number was 13,228 as against 17,102, and outward 10,766 as compared with 14,116, thus giving a deficit of 3,874 inward and 3,350 outward. The only increase recorded in the whole set of statistics was in regard to troops inward bound, the number being 4,546 as against 4,222 a year ago.

No Improvement on North Atlantic Passenger Trade.

No signs of improving conditions on the North Atlantic are yet apparent, and with the prospect of only a small passenger list the White Star Line decided to defer the re-entry into service of the "Homeric" and cancelled her May sailing. She is due to sail early in June, by which time she will have spent practically nine months idle in port.

The May sailing was the second "Homeric" sailing cancelled this year, for she was due to leave Southampton on April 20th, but arrangements were made to cut out that sailing. At the same time voyages which were to have been made by the "Mauretania" and "Lancastria," of the Cunard Line, were struck from the schedule.

The "Homeric" will be seen very little on the North Atlantic this summer, for on July 14th she commences from Southampton the first of a series of tour cruises, which will keep her engaged until the middle of September.

Red Star Line to Call at Southampton on Eastbound Trip.

The arrival of the Red Star liner "Pennland" at Southampton early in May marked an important development, for the vessel was the first of the company's steamers to include Southampton as an east-bound port of call.

It was announced some time ago that the Red Star Line had decided to drop Plymouth as their east-bound port of call in the United Kingdom and concentrate upon Southampton, which is utilised by the vessels when bound from Antwerp to New York.

The Red Star liners "Pennland" and "Westernland" will be employed as tourist and third class carriers, while the "Minnetonka" and "Minnewaska" will take tourist class passengers only. Both these two "Minne" steamers have made their first call in the past month.

New United States Liner to Call at Southampton.

The new United States liner "Manhattan" will join the Atlantic service in August, and as she will call at Southampton on her west-bound voyages she will be a welcome addition to the vessels using the port.

The "Manhattan," which will have a speed of approximately 20 knots and a passenger-carrying capacity of 1,300, will leave New York on her maiden voyage on August 10th.

The "Manhattan" has three classes of passenger accommodation—cabin, tourist and third. Some of the noteworthy features of the new liner are the up-to-date scientific ventilation and air-conditioning apparatus, decorations for cabins and public rooms executed in various period designs, spacious promenade decks and sports decks.

Dock and Harbour Authorities' Association

Report of the Executive Committee for the Year ended 31st December, 1931

(Concluded from page 189)

XVth International Congress of Navigation, Venice, 1931.

Last June the Association received through the Ministry of Transport an invitation from the Government of Italy to attend this Congress (Circular 235).

Preliminary notices had previously been given by the Ministry, which are referred to in the Reports for 1929 and 1930 and in Circular 178.

The British Delegation consisted of Sir Ian Malcolm, a Director of the Suez Canal Co., Chief of the Delegation, Sir Cyril Kirkpatrick, President of the Institution of Civil Engineers, and Mr. H. A. Reed, Consulting Engineer to the Manchester Ship Canal Company.

The Congress was opened by H.M. The King of Italy, in the Doges Palace, on 12th September, and the conclusions arrived at by the various sections were approved at a general assembly of the members on 22nd September under the Presidency of the Duke of Abruzzi.

Forty countries were represented, and the number of members who attended, including the official delegates, was approximately 600. Among the bodies represented were the Manchester Ship Canal Co. and the Dublin Port and Docks Board.

The work of the Congress was divided into two sections, namely, Inland Navigation and Maritime Navigation.

Amongs the matters brought forward for discussion were:—

1. Inland Navigation.

Infiltration of water under the foundations and round retaining works and through the lengthwise embankments of navigable waterways. Means of preventing infiltration.

Regularization and canalization works of rivers and streams.

Progress made in recent years in the dispositions and exploitation of navigation works on canals and canalized rivers, and also in the arrangements of their access.

Inland ports: general dispositions, types of quays.

Study of hydro-technical questions by means of laboratory reduced scale models.

2. Maritime Navigation.

Railway lines and funicular railways giving access to ports. Railway installation in ports.

Protection of coasts against the sea.

Administration of commercial ports, including conditions relating to the establishing, etc., of Free Ports and Free Zones in Ports.

The use of concrete and reinforced concrete in maritime navigation works.

Designs for the working of closing appliances of dry docks, locks, etc.

It will be seen from this brief resumé that a wide range of subjects was brought under review and discussed.

A number of papers, including some from British engineers, were submitted; these are being recorded in the Proceedings of the Congress, and so will be available for reference.

Visits were made to harbours and engineering works in the vicinity of Venice, and also to the Ports of Genoa and Naples.

Royal Commission on Transport.

Final Report (Cmd. 3751, 1931).

The Ministry of Transport asked for the Association's observations on the conclusions and recommendations contained in the Report, and the following is the Association's reply:—

Dock and Harbour Authorities' Association,
13, Victoria Street, S.W.1,
July 29th, 1931.

Sir,

Royal Commission on Transport. Final Report.

I beg to refer to your letter of June 10th in which you say that the Minister would be glad to receive any observations from the Association on the conclusions and recommendations contained in the Final Report of the Royal Commission on Transport.

The Association note that the Royal Commission refer to the efficient management of the Dock Undertakings of the country in general (*vide* page 126, para. 450, and other paras. such as LXXXVII and LXXXVIII on page 166).

The Association desire to refer to the conclusions of the Commission with regard to the revision of maximum charges at Docks and Harbours and to paras. 465-468 under the heading "Charges and Expenses," in which both general expenses and also the cost of policing docks and harbours are referred to.

On the first point I am desired to say that the statement in the Report, which appears to be founded on a statement contained in the Memorandum of Evidence submitted by the Ministry of Transport (Memo. No. 1, page 24), that "a provision is included in most Special Acts dealing with harbour rates giving the Minister of Transport power to revise the maximum rates after holding an inquiry, should the circumstances so require," is not correct so far as the larger non-railway-owned ports are concerned. The fact is that with one exception none of the principal independent Dock and Harbour Authorities are subject to any outside power of revision, although the Ministry as well as shipowners have frequently made representations that such a provision should be inserted in Bills. These representations have invariably been rejected by Parliament after full investigation of all the circumstances, and only as recently as the Session of 1929 Parliament declined to insert such a provision in the Clyde Navigation Act of that year.

The statement that the right of appeal in respect of Harbour Rates is analogous to that which is applicable to railway rates is without foundation. The right of appeal in respect of railway rates is part of an elaborate system for adjusting charges to a standard revenue prescribed by Parliament, a system which was established when more than 100 railway companies were being amalgamated into four. The system of charges applicable to Docks and Harbours is very different.

On the second point, "Charges and Expenses," the paragraphs comparing the cost of working at British and Continental Ports are well worthy of consideration, and on the police question the recommendation contained in para. 468, page 131, is as follows:—

> "In view of the derating provisions of the Local Government Act, 1929, we are not prepared to recommend that harbour authorities should be further relieved from the payment of local rates. It is, however, open to question whether they should not be relieved of some part of the cost of policing the dock areas, and we recommend that this question should be further considered by the Home Office."

I attach copy of the letter which the Association sent to the Chancellor of the Exchequer and the Home Secretary on this subject dated the 6th March. If the Minister can further this suggestion of the Royal Commission the Association will be obliged, as he is aware that any reduction of the charges incurred by Dock and Harbour Authorities enures to the benefit of the trade of the country.

I enclose for the information of the Minister the Association's Memorial dated December, 1920, addressed to the Chancellor of the Exchequer and the Home Secretary, and the subsequent correspondence on the subject.

I am, Sir,
Your obedient Servant,
(Signed) W. C. THORNE.

The Secretary,
Ministry of Transport,
Whitehall Gardens, S.W.1.

Tonnage Measurement.

Unmeasured Spaces in Oil Carriers and other Vessels.

In the year 1925 the Board of Trade, as the result of representations from the Association, had certain specially constructed oil-carrying vessels fitted with cylindrical tanks remeasured, with the result that the nett tonnage of these vessels was considerably increased, as the spaces round the tanks were added to the measurement (Report for 1925, pages 21 and 22).

It was subsequently ascertained that these vessels carried oil in the space below and leading from the cylindrical tanks, and it was pointed out to the Chamber of Shipping that as these spaces were not included in the Register Tonnage dues should be paid on oil carried therein as for deck cargo.

A meeting was held in December with representatives of the Chamber of Shipping, when they pointed out that the ships which gave rise to this question were few in number, and as they are not an economic proposition the design would not be repeated, and further there was room to carry the extra oil in measured spaces.

In these circumstances the Committee recommended members not to charge dues on these spaces in question, and a copy of the Association's letter to the Chamber of Shipping, dated December 22nd, was sent to the members with Circular 252.

It is well to note that while objecting to the payment of dues on these particular spaces the Chamber of Shipping made it

Dock and Harbour Authorities' Association—continued

clear that they were not asking the Association to re-open the larger question settled by arrangement in 1921 (Circular 17, dated December 29th, 1921), viz., that so long as the spaces are not included in the ship's measurement shipowners will pay dues as for " deck cargo " on unincluded spaces in double bottom tanks occupied by oil, spirit, etc., and carried either as cargo or for ship's own use.

Shipbuilding and Ship Repairing Regulations, 1931.

Dry Docks and Graving Docks.

These regulations, mentioned in previous Reports, were made by the Home Secretary on February 24th and apply to repair of ships in dry and graving docks (S.R. and O. 1931, No. 133).

Before being passed the regulations were amended to meet various points raised by the Association; particulars of these were given when reporting that the regulations were in force. (Circular 228).

It has been arranged with the Chief Inspector of Factories that the prescribed register for the Dock Regulations, 1925, with some slight alterations, may be used as the Register for these Shipbuilding and Ship Repairing Regulations (Circular 246).

Building (Amendment) Regulations.

The Association, with other bodies more closely concerned, such as the National Federation of Building Trade Employers and the Engineering and Allied Employers' National Federation, lodged objection to these Regulations, mainly on the ground that Regulation 9 (a) made obligatory the fitting of an automatic safe-load indicator and sound signal to cranes whether with a fixed or derricking jib used for building purposes with certain exceptions.

Following negotiations with the Home Office, the exceptions under the clause were widened, and the other bodies having withdrawn their objections, the Association followed suit on the understanding that the withdrawal of the objection would not affect the objections also lodged to the Draft Jib Crane Regulations next referred to.

Draft Jib Crane Regulations.

The Home Office circulated these Draft Regulations in March. Regulation 3 sought to make compulsory the fitting of automatic-load indicators with sound signals to jib cranes, and this provision in particular was strenuously opposed by industry generally.

The Association's letter of objection to the Regulations, dated April 23rd, is printed as an Appendix at the end of the Report.

Port Charges.

This matter is referred to in the Report for 1928, page 33, and in earlier Reports. It was again brought under notice by the Traders' Co-ordinating Committee on Dock Charges in a letter addressed to the principal ports in July asking for a reduction in charges, and the Association of British Chambers of Commerce also approached the Association on the same subject. A copy of the Association's reply, dated June 13th, is contained in Appendix E to Interim Report No. 2 (Circular 239).

This is a problem to which port authorities give constant attention, and they are as anxious as any other of the large trading interests in the country to see that charges are as low as circumstances permit. Reductions have been made at a number of the ports, and will continue to be made wherever possible.

Chief Inspector of Factories' Report for 1930.

(Cmd. 3927.)

(a) Regulations—Accidents.

The reference to docks in the Report (p. 41) opens with the following statement: "As in previous years the great majority of the defects noted were on foreign ships, and the most frequent irregularity was the neglect to carry certificates of testing and periodical examination of the ship's gear. . . . . Many foreign shipmasters have complained of the variations between our Regulations and those of other countries, and they excuse their failure to comply by pleading ignorance of the requirements."

Again on page 42:—

" Several inspectors refer to the extremely small proportion of dock accidents attributable to breach of the Regulations. In some important maritime districts none of the numerous accidents during the year were due to this cause."

(b) Accident Prevention—Safety Arrangements.

The Report states that the position as regards safety organisation in docks remains much the same as in the previous year, and this position is referred to in the 1929 Factory Report as varying a good deal in different ports, in some of which very good work has been accomplished.

The Executive Committee have recently considered the question of safety arrangements with the National Confederation of Employers' Organisations, and have asked members to do all that is possible to promote safety organisations locally (Circular 250).

De-rating of Railway, Canal and Dock Undertakings.

Local Government Act, 1929.
Local Government (Scotland) Act, 1929.
Rating and Valuation (Apportionment) Act, 1928.

There have been a number of cases in the English Courts and in the Valuation Appeal Courts in Scotland on applications brought by various dock authorities claiming to have hereditaments inserted in the Special List as freight transport hereditaments under the provisions of Sections 5 and 6 of the Rating and Valuation (Apportionment) Act, 1928, and under the Local Government Act, 1929.

In England the Mersey Docks and Harbour Board and the Liverpool Grain Storage and Transit Co., Ltd., both had cases relating to warehouses which were carried as far as the Court of Appeal. A very full report of these cases will be found in the Law Reports, 1932, 1 K.B , page 40; they are also more briefly reported in 47 *Times* Law Reports, page 468.

The warehouses in question are on the Liverpool side of the river and those of the Mersey Board are used in connection with grain, tobacco, sugar, wines and spirits, and wool; those of the Liverpool Grain Storage Co. in connection with grain only.

The Recorder in the Court of Quarter Sessions held that all the warehouses were entitled to be placed in the Special List and to be de-rated. A Divisional Court of the High Court, however, consisting of the Lord Chief Justice, Avory and Mackinnon, JJ., held that the warehouses used in connection with wool, tobacco, sugar, and wines and spirits were not entitled to be de-rated, but that those dealing with grain were.

The Mersey Board, and the Crown, for the grain warehouses, appealed. The Court of Appeal, after a hearing occupying altogether seven days, dismissed all the appeals.

The judgments of the Lord Justices (Scrutton, Greer and Slesser) should be studied, as they lay down the principles (it is understood that none of the cases are being taken to the House of Lords) which will govern in future the de-rating of warehouses at which business is carried on in a manner similar to that described in the Special Cases as set out in full in the Law Reports.

Lord Justice Scrutton held that the bonded warehouses, i.e., those which were concerned with tobacco, sugar, and wines and spirits, were not freight transport hereditaments within the meaning of Section 5 of the Apportionment Act. Lord Justice Greer held, however, that these warehouses, having regard to the fact that 90 per cent. of the tobacco stored therein comes on bills of lading requiring delivery to a King's warehouse, the shipowner paying master porter's charges and cartage to the warehouse, and, having regard also to the fact that when in warehouse the tobacco is still subject to the shipowner's lien for freight, were freight transport hereditaments within Section 5; that once within Section 5 they could not be entirely excluded by proviso (b) to Section 6, sub-section (3), on the ground that they were places primarily occupied and used for warehousing merchandise not in the course of being transported, and that therefore their rateable value ought to be apportioned between their occupation and user for transport purposes and their occupation and user for other purposes.

Lord Justice Slesser, while agreeing with Greer, L.J., that the bonded warehouses were freight transport hereditaments, held that no part of the hereditaments was primarily occupied and used for warehousing merchandise in the course of being transported, and there was therefore no room for apportionment.

With regard to the wool warehouse, which is not a bonded warehouse, the Court took the view that it was clear on the facts stated that it was not used " for or in course of transport " within the meaning of the Act, but as a place for preparing for sale, and for sale, and Lord Justice Scrutton said that this was storage for sale, not in course of transport.

With regard to the grain warehouses, both of the Board and of the Liverpool Grain Storage Co., the Court held that as the Court of Quarter Sessions had in each of these cases held that the warehouse in question was occupied and used for purposes connected with the shipping and unshipping of merchandise at a dock and for warehousing merchandise in the course of being transported and not primarily for warehousing merchandise not in the course of being transported, and as the Divisional Court had affirmed these decisions, they saw no reason for reversing the decisions of the latter Court.

In Scotland several cases relating to offices and stores belonging to the Clyde Navigation Trustees and let to shipowners, and to ground at the harbour let by the Trustees to shipowners and stevedores on which they erected offices and stores for dock purposes. These premises, i.e., the " offices and stores " belonging to the Trustees and the " ground " let by them, had been de-rated by consent in 1930, the Inland Revenue having withdrawn their objection. However, as the local Valuation Committee in 1931 did not de-rate the premises, the Clyde Trustees appealed to the Valuation Appeal Court.

Dock and Harbour Authorities' Association—continued

That Court (Lords Hunter, Sands and Fleming) held that these subjects or premises fell to be de-rated as although they were capable of separate assessment they were occupied and used for transport purposes.

The same Court had decided in 1930 that offices and stores erected by tenants on ground held by them from the Clyde Trustees should not be de-rated.

The distinction drawn by the Scottish Court by their decisions of 1930 and 1931 appears to be that premises erected by and belonging to the Clyde Trustees though let to tenants, and ground of the Trustees let to tenants, are entitled to de-rating, but that premises erected by tenants on ground let to them by the Trustees are not entitled to de-rating.

Trade Board Acts—Catering Trade.

Report for 1930, p. 30.

The Commissioner (Sir Arthur Colefax) appointed to consider objections to the Minister of Labour's draft Order applying the Trade Board Acts to the Catering Trade, made his Report on December 31st, 1930. On the question in which the Association was interested, namely, "Works Canteens" and "Staff Restaurants," the Commissioner found that these were outside the scope of the Trade Board Acts.

Miscellaneous.

Among other matters which have received attention during the year are:—

Advertising Facilities at Ports.
Anti-breakage Coaling Appliances.
Cross-Channel Traffic.
Damage to Vessels—Dock Gates Failing to Close.
De-rating—Application of Funds.
Dock Police—Exchequer Grant.
Fire Insurance at Docks and Harbours—Discount.
Greater Use of Electricity at Ports—Chamber of Shipping.
Hours of Work of Salaried Employers—Draft International Convention.
Industrial Situation.
Income Tax—Allowance for Depreciation on Steam Cranes.
Expenditure on Reclamation Works.
Allowance of one-sixth annual value of "mills, factories or similar premises."
International Colonial and Maritime Exhibition at Antwerp.
International Lighthouse Conference—Paris, July, 1933.
International Maritime Conventions—Mortgages and Liens.
Limitation of Liability.
Land Drainage Act, 1930—Draft Land Drainage (General) Regulations.
Land Boilers—Pump Tests.
Lighting at Docks.
Oil Pollution—R.S.P.C.A.
Pilotage Inquiries.
Powers of Ministers—Lord Donoughmore's Committee.
Promotion of Seamen's Welfare at Ports—International Labour Conference.
Railway Freights Rebates Schemes—1931 Review.
Road Traffic Act—Notices on Bridges.
Road and Rail Traffic at Docks.
Standing Committee on Mineral Transport—20-ton Wagons.
Telephone Charges.
U.G.C. Grants in respect of Dredging.

Principal Circulars issued in 1931.

Industrial Situation (No. 225).
U.G.C.—Development (Loan Guarantee and Grants) Act, 1929 (Nos. 226 and 231).
Shipbuilding and Repairing Regulations (Nos. 228 and 246).
Petroleum Bill, 1931 (No. 232).
Specifications (Nos. 233, 238, 240, 241 and 251).
Interim Reports, May and September (Nos. 234 and 239).
Department of Scientific and Industrial Research—Water Pollution (No. 237).
Allowance on Plant and Machinery—Budget Statement (No. 243).
Income Tax, U.G.C.—Seaham Harbour Case (No. 248).
Accident Prevention—Safety Arrangements (No. 250).
Tonnage Measurement (No. 252).
Duties on Goods—Facilities in Transit (No. 253).

Accounts.

The expenditure charged to this year's accounts amounts to £2,234 8s. 5d., of which £2,205 3s. 6d. is payable by members of the Association.

The Executive Committee do not recommend any levy on the 1931 subscriptions, but propose to carry forward the deficit of £97 0s. 10d., shown by the accounts, to the year 1932.

The Committee propose to repay at an early date £1,000 of the loan of £2,000 advanced to the Association (p. 34, 1930 report) by the five authorities represented on the Railway Sub-Committee, leaving the balance to be refunded as circumstances permit.

Subscriptions.

Harbour, Conservancy, Pilotage and Lighthouse Authorities.

The Committee fixed the subscriptions of these authorities under Rule 12 (4) for 1932 on a gross income basis.

Appendix.

Draft Jib Crane Regulations.

The Association's Objections (Page 27 of Report).

"Dock and Harbour Authorities' Association,
13, Victoria Street, S.W.1,
April 23rd, 1931.

Sir,

Draft Regulations for Jib Cranes.

The Draft Regulations forwarded with your letter of March 3rd, 1931 (206,025/67), have been considered by this Association, and I am directed to object to the inclusion in the Regulations of Jib Cranes used in the processes of loading, unloading, moving and handling goods in, on or at any dock, wharf or quay or in the processes of loading, unloading and coaling any ship in any dock, harbour or canal, on the following grounds, viz.:—

1.—(a) The Docks Regulations (S.R. and O. 1925, No. 231) settled as recently as 1925, contain Rules for the testing, examination and working of cranes at docks and harbours and on board ships, which were framed to meet the requirements of the work at these places, and they have proved sufficient for their purpose.

(b) The whole code contained in the 1925 Regulations, which followed the previous code of 1904, was, at the invitation of the Home Secretary, settled at a Conference attended by representatives of the Home Office, Employers, and the Transport and General Workers' Union, after careful consideration, and were the outcome of concessions made by the various interests in order to arrive at an agreed result, the result being in the nature of an agreement between the Home Office and the representatives of employers and labour, which it was understood would not be disturbed without good reason. In this connection attention is drawn to the Report of the Conference dated February, 1924, contained in a White Paper headed 'Home Office—Report of the Conference on the Prevention of Accidents at Docks.'

It is therefore undesirable that any extensions or modifications of the Docks Regulations should be made by means of an extraneous code. Such a procedure would inevitably lead to uncertainty and confusion and tend to litigation.

2.—The main provisions relating to cranes in the 1925 Regulations are contained in Regulations Nos. 18 and 28. They are as follow:—

'No. 18.—(a) All machinery (i.e., cranes, etc., *vide* Definitions, p. 2) shall have been tested and examined by a competent person before being taken into use, and (i) all derricks and permanent attachments, including bridle chains, to the derrick, mast and deck, used in hoisting or lowering shall be inspected once in every twelve months, and be thoroughly examined once at least in every four years; (ii) all other machinery shall be thoroughly examined once at least in every twelve months.

(b) A certificate signed by the person making the test and specifying the safe working-load shall be attached to the prescribed register, in which shall also be entered the dates on which the inspections and examinations required under paragraphs (a) (i) and (a) (ii) of this Regulation are made.'

'No. 28.—Every shore crane shall have the safe working-load plainly marked upon it, and if so constructed that the safe working-load may be varied by the raising or lowering of the jib or otherwise, shall have attached to it an automatic indicator of safe working-loads, provided that, in cases where the jib may be raised or lowered, provision on the crane of a table showing the safe working-loads at the corresponding inclinations of the jib shall be considered sufficient compliance.'

3.—The proposed draft International Convention (White Paper 1929, Cmd. 3441) adopted at the International Labour Conference convened by the League of Nations also contains provisions relating to cranes, etc., in Article 9.

The British Docks Regulations formed the basis for the Convention, which it is understood His Majesty's Government propose to ratify. If that Convention is to be of any value it is obviously desirable, from the point of view of securing compliance on the part of the signatories, that the requirements of national laws in relation to safety in dock work should be contained in the national codes of Dock Regulations and nowhere else. This is no less desirable for the purpose of securing practical uniformity in the legal requirements of the countries concerned, which it has been recognised in the latest Annual Report of the Chief Inspector of Factories (see page 41 of the Report for 1929) is essential for the extension of the principle of international reciprocity in the recognition of the measures taken to secure safety in dock work.

4.—Dock cranes are designed for the purpose of the work which they have to perform, and are worked with adequate factors of safety and have ample stability.

Dock and Harbour Authorities' Association—continued

5.—(a) The Home Office letter of March 3rd, forwarding the draft Regulations for consideration, contains the following sentence:—

'The Secretary of State is advised that where cranes are properly tested and adequately examined and maintained, and precautions taken to avoid overloading, the failures reported have been comparatively few.'

It is submitted that the provisions of the Docks Regulations, 1925, relating to cranes, adequately ensure the standard of safety indicated in the above sentence.

(b) The number of crane accidents at docks and harbours is small, and the Association consider that there is no good reason for extension or modification of the Docks Regulations of the kind or in the manner now proposed. Should it appear, however, that there is good reason for reconsidering such of the Docks Regulations as apply to cranes, it is submitted that the matter should be dealt with as on previous occasions by conference and consultation between the Home Office and the various interests who took part in framing the existing Regulations. In passing, attention is drawn to the Report of the Chief Inspector of Factories for 1928, Chapter 1, p. 13, where he sets out under the head of " Safety " that the accidents in dock processes have decreased, presumably as compared with 1927, by almost 600.

6.—The Association have, therefore, to request that the draft Regulations should be amended by the insertion of the following words after the figures ' 1931 ' in 1 (8) on p. 1, viz.: ' or (2) to processes coming within the provisions of the Dock Regulations, 1925, or any modifications thereof, or (3) to a crane, etc.'

I am, Sir,
Your obedient Servant,
(Signed) W. ASHLEY CUMMINS.

The Under-Secretary of State,
Home Office, S.W.1."

Notes of the Month.

Seagoing Shipping Traffic in Emden Port.

In sea-borne traffic of Emden Port 55 vessels with cargo and 41 vessels in ballast arrived in March, with a net registered tonnage of 32,886 tons with cargo and 26,106 tons in ballast. Three thousand seven hundred and seven tons of coal and coke, 48,702 tons of ore, 8,503 tons of grain, and 2,822 tons of other goods, altogether 63,734 tons, arrived with these vessels; 82 ships with cargo with a net registered tonnage of 43,332 tons and 15 sea-going vessels in ballast with 24,023 tons departed. They took 81,887 tons of coal, coke, and about 1,000 tons of other goods.

The Port of Manchester.

With the arrival of the s.s. " Florentine " from Riga on the Baltic this week the Port of Manchester has received the largest consignment of laths in one ship for one importer which has entered the port since the war. The consignment exceeds 38,000 bundles, equal to about 150 standards, which is part of a general timber cargo.

Southampton Harbour Board Chairman Re-elected.

Mr. Harry Parsons, J.P., M.I.Mech.E., managing director of the Parsons Oil Engine Co., Ltd., has again been elected chairman of the Southampton Harbour Board. This will make the tenth year Mr. Parsons has occupied that position.

Dock Dues and Landing Charges Agreement.

As a result of communications between the Treasury and Customs and the Dock and Harbour Authorities' Association, the principal Chambers of Commerce, the Chamber of Shipping, the railway companies owning docks, the Association of public Wharfingers of the Port of London, and other bodies, an agreement is now in force defining the system of valuing goods for the purpose of duty under Section 15 of the Import Duties Act, 1932.

The agreement deals with dock dues and landing charges, etc. It has been reached on the following lines and will apply in all cases where the value of goods is based on a c.i.f. invoice and where the dues and charges referred to are payable over and above the freight:—

(a) The actual amount of any charge specifically made for depositing the goods on the quay or in a lighter alongside the vessel will be included in the value, or if the charge covers that service and other services besides, such an amount as may reasonably be held to cover that service; and

(b) A percentage equal to one-tenth of 1 per cent. of the c.i.f. value will be included to represent the dutiable value of any tolls on the goods which are not charges for specific service, e.g., the London port rates, the Liverpool dock rates and town dues, and the Manchester Ship Canal tolls.

The procedure will apply in the case of all *ad valorem* import duties, but will not affect any arrangement made with trade associations relating to goods delivered on consignment.

In accepting the settlement it was made clear that the agreement was not to prejudice the rights of any parties to re-open the question at a future date if occasion should arise.

Ruston-Bucyrus Excavators.

Ruston-Bucyrus, Ltd., Lincoln, report a steady demand for excavators ranging from ½ cu. yd. to 2¼ cu. yd. bucket capacity. Recent orders include a repeat order from Messrs. L. J. Speight, Ltd., contractors, London, W.C.2, for five No. 4 excavators. It is understood that these five machines are for work on the widening and reconstructing of over 50 locks on the Grand Union Canal, a contract recently secured by Messrs. L. J. Speight, Ltd.

TENDERS INVITED

The Galway Harbour Commissioners will, at their meeting to be held on the 7th June, 1932, be prepared to consider tenders for carrying out certain boring works at Galway Harbour in order to ascertain the nature of the channel proposed to be dredged, in accordance with the plan and specification prepared by the Harbour Engineer, W. N. Binns, B.E., and which may be seen at this office any day between the hours of 11 a.m. and 4 p.m., Sundays and holidays excepted.

Tenders addressed to "The Presiding Chairman" to reach me on or before 4 p.m., on Monday, 6th June.

The Commissioners do not bind themselves to accept the lowest or any tender.

By Order,
T. N. REDINGTON,
Secretary.

Port of London Notes

Tilbury Passenger Landing Stage.

Twenty-seven vessels totalling 294,216 gross registered tons, used the Tilbury passenger landing stage during the month of April. Altogether, 5,451 passengers were embarked or disembarked at the stage, in addition to baggage and mails.

London's Shipping.

During the week ended April 29th, 844 vessels, representing 779,287 net registered tons, used the Port of London; 416 vessels (612,938 net registered tons) were to and from Colonial and foreign ports and 428 vessels (166,349 net registered tons) were engaged in coastwise traffic.

* * * *

During the week ended May 6th, 794 vessels, representing 799,938 net registered tons, used the Port of London; 397 vessels (651,036 net registered tons) were to and from Colonial and foreign ports and 397 vessels (148,902 net registered tons) were engaged in coastwise traffic.

* * * *

During the week ended May 13th, 1,107 vessels, representing 1,029,459 net register tons, used the Port of London; 433 vessels (830,235 net register tons) were to and from Colonial and foreign ports and 674 vessels (199,224 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended May 20th, 784 vessels, representing 754,311 net register tons, used the Port of London; 384 vessels (591,144 net registered tons) were to and from Colonial and foreign ports and 400 vessels (163,167 net registered tons) were engaged in coastwise traffic.

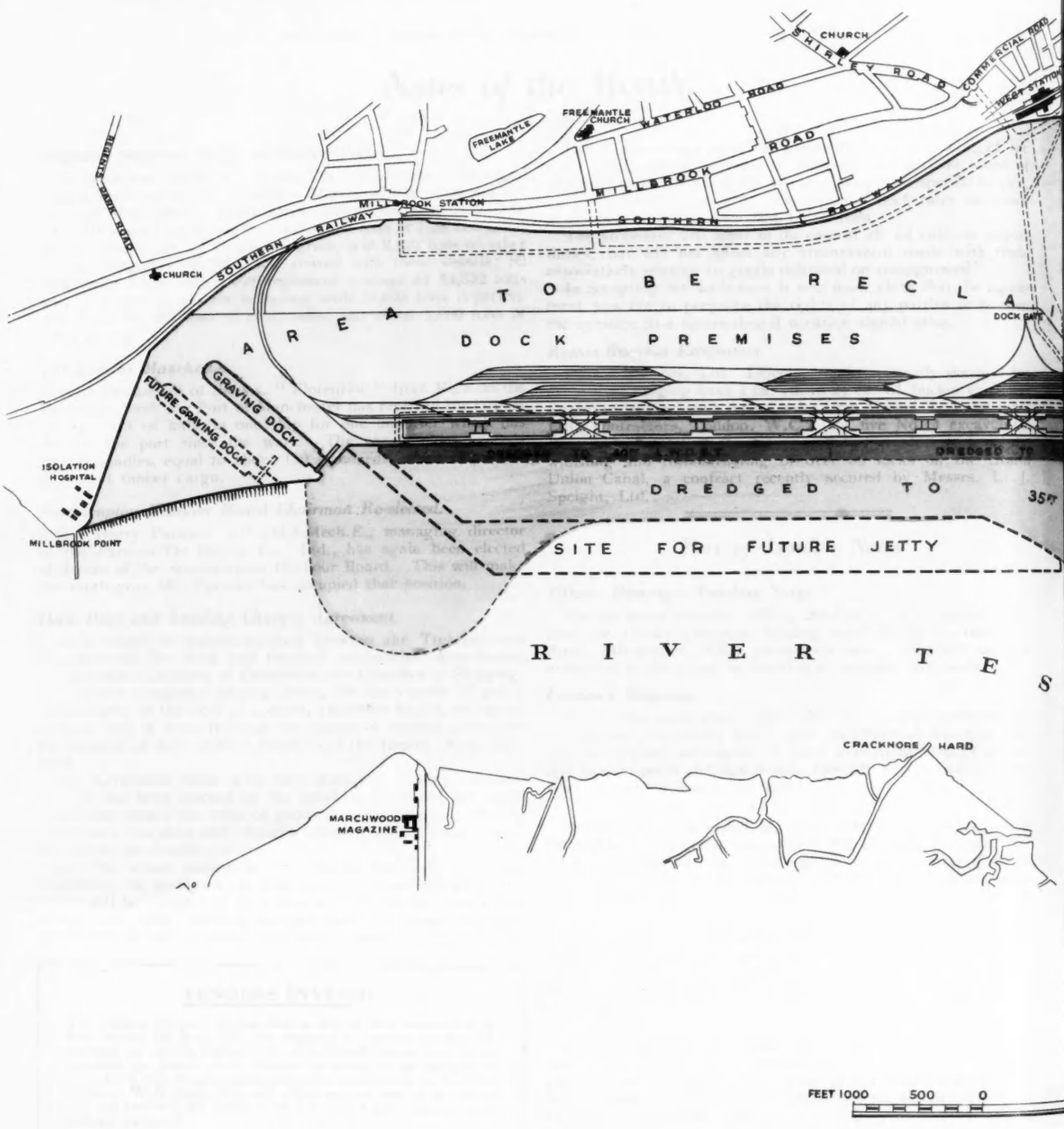
London's shipping more than holds its own. During the twelve months ended April 30th the total shipping for all United Kingdom ports showed a decline of 4.7 per cent., whereas London declined by only 2.9 per cent., the figures being 55,627,967 net registered tons, as compared with 57,300,590 net registered tons for the previous year. During the same period Liverpool showed a decline of 4.5 per cent., whilst Southampton's decrease was even greater, being 10.6 per cent.

July 1931

PORT OF SOUTHAMPTON.

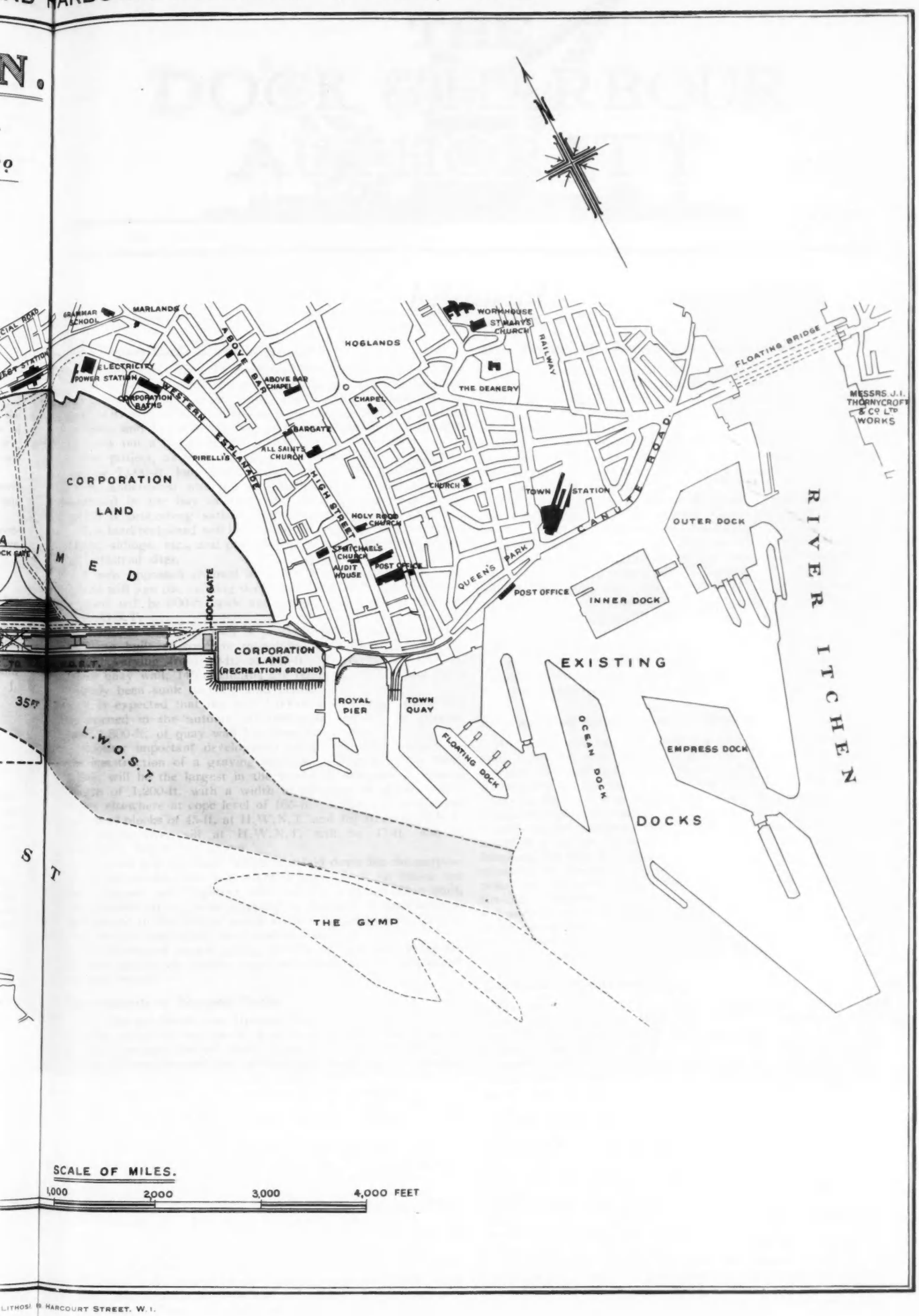
DOCKS EXTENSIONS—WESTERN SHORE.

UNDER THE JURISDICTION OF THE SOUTHERN RAILWAY Co



WARD & FOXLOW LTD. LITHOS. SOUTHAMPTON

ND HARBOUR AUTHORITY, JULY, 1932.



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